2013-1400, -1401

(Reexamination No. 95/000,196)

United States Court of Appeals

for the

Federal Circuit

ARLINGTON INDUSTRIES, INC.,

Appellant,

v.

BRIDGEPORT FITTINGS, INC.,

Cross-Appellant.

Appeals from the United States Patent and Trademark Office, Patent Trial and Appeal Board

PRINCIPAL BRIEF OF APPELLANT ARLINGTON INDUSTRIES, INC.

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August 26, 2013

CERTIFICATE OF INTEREST

Counsel for Appellant Arlington Industries, Inc. certifies the following:

1. The full name of every party or amicus represented by me is:

Arlington Industries, Inc.

2. The name of the real party in interest (if the party named in the caption is not the real party in interest) represented by me is:

Arlington Industries, Inc.

3. All parent corporations and any publicly held companies that own 10% or more of the stock of the party or amicus curiae represented by me are:

None

4. The names of all law firms and the partners or associates that appeared for the party or amicus now represented by me in the trial court or agency or are expected to appear in this court are:

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TABLE OF ABBREVIATIONS

Board	Board of Patent Appeals and Interferences
PTO	United States Patent and Trademark Office
’831 Patent	United States Patent No. 6,521,831 to Gretz (the patent subject to the instant reexamination)
’427 parent application	United States Patent Application Serial No. 09/373,427 to Gretz (parent application to the ‘831 patent)
Arlington	Arlington Industries, Inc.
Bridgeport	Bridgeport Fittings Inc.
District Court Action	*Arlington Industries, Inc. v. Bridgeport Fittings, Inc.*, No. 3:06-CV-1105
Grindle	United States Patent No. 1,295,304 to Grindle
Schnittker	United States Patent No. 4,885,429 to Schnittker
Roeder	United States Patent No. 2,744,769 to Roeder
SNAP^{2}IT® duplex connectors	Arlington 3838AST, 3838ST, and 4040ST SNAP^{2}IT® duplex connectors

STATEMENT OF RELATED CASES

This appeal by Arlington Industries, Inc. ("Arlington") arises from the *inter partes* reexamination of U.S. Patent No. 6,521,831 ("the '831 Patent) from the decision by the Board of Patent Appeals and Interferences in Reexamination No. 95/000,196. No other appeal in or from the same reexamination proceeding in the PTO was previously before this or any other court.

The '831 Patent is the subject of a district court litigation the U.S. District Court for the Middle District of Pennsylvania in *Arlington Industries, Inc. v. Bridgeport Fittings, Inc.*, No. 3:06-CV-1105 (the "district court action"), filed on May 31, 2006. In the litigation, Arlington has accused Bridgeport's Whipper-Snap Duplex Connectors, catalog numbers 3838ASP and 3838SP (the "Duplex Connectors") of infringing the '831 patent and U.S. Patent No. 5,266,050 (the "'050 patent").

In the district court action, the district court had granted Bridgeport's motion for summary judgment of non-infringement of the '831 and '050 patents after a *Markman* hearing. That decision was appealed to this Court.

On January 20, 2011, this Court issued an opinion and order finding for Arlington on all issues in the appeal. *Arlington Indus., Inc. v. Bridgeport Fittings, Inc.*, 632 F.3d 1246 (Fed. Cir. 2011). This Court rejected the district court's construction of the claim term "spring metal adapter," as used in both the '831 and

’050 patents, and instead construed the disputed claim term to mean “an adaptor made of spring metal.” *Id*. at 1256. This Court also vacated district court’s finding of the non-infringement. *Arlington*, 632 F.3d at 1256-57. After the mandate issued, the case was remanded to the district court for further proceedings in accordance with this Court’s claim construction.

While the portion of the district court litigation relating to the ’831 patent litigation has been stayed pending the subject *inter partes* reexamination, Arlington has proceeded with litigating in the district court action on the ’050 patent. The district court granted a preliminary injunction for Arlington against the Duplex Connectors. *Arlington Industries, Inc. v. Bridgeport Fittings. Inc.*, C.A. No. 3:06-cv-1105, 2011 WL 2927817 (M.D. Pa. July 18, 2011) (preliminary injunction entered against Bridgeport). That preliminary injunction dissolved on December 4, 2011, upon the expiration of the ’050 patent.

JURISDICTIONAL STATEMENT

This appeal arises from a final decision of the Board of Patent Appeals of Interferences of the United States Patent and Trademark Office, now the Patent Trial and Appeal Board, in a reexamination proceeding. This Court has jurisdiction over this appeal under 28 U.S.C. § 1295(a)(4).

STATEMENT OF ISSUES

1. Whether the Board erred as a matter of law in construing "secured in each of said openings in said inbound end [of the connector]," when it:

(a) substituted "secured to" for "secured in"; and

(b) disregarded the term "openings" in the limitation.

2. Whether the Board's conclusions that Schnittker teaches a retainer "secured in each of said openings in said inbound end" is supported by substantial evidence where:

(a) Schnittker does not actually teach or suggest a "retainer"; and

(b) the grounding ring of Schnittker (asserted to be a "retainer") is located well beyond any opening in the inbound end of the connector.

3. Whether the Board's conclusion that Schnittker is combinable with Grindle is supported by substantial evidence where:

(a) there is no motivation to combine two of Schnittker's five piece retaining apparatus to Grindle; and

(b) the combination would require substantial reconstruction to Grindle.

4. Whether the Board erred as a matter of law when it ignored that the retainer's tangs must "*guide said separate cables towards said cylindrical outbound end*" where:

(a) the Board relied on the "shoulders" of Grindle's "housing" to establish the claimed function; and

(b) Schnittker's "tangs" do not perform the function from the openings of the inbound end.

5. Whether the Board's reliance on Roeder for the disclosure of a "spring steel adapter" is supported by substantial evidence where the bushing is not made of "spring steel," nor is it designed to retain metal cables.

6. Whether the Board erred as a matter of law in rejecting Arlington's evidence of secondary considerations based on a determination that Arlington did not establish a nexus between its claims and its evidence, where:

(a) Arlington submitted a claim chart demonstrating on an element-by-element basis that its products are commensurate with claim;

(b) Arlington submitted industry praise regarding the patented features of Arlington's commercial embodiments.

STATEMENT OF THE CASE

This appeal arises from the *inter partes* reexamination of the '831 patent, which issued on February 18, 2003. Bridgeport requested the *inter partes* reexamination on November 15, 2006. A4. The PTO granted reexamination on April 13, 2007, and issued a final rejection on August 14, 2009. A2103-22; A1195-63. Arlington appealed to the Board on September 9, 2009. A1191-92. Bridgeport cross-appeal the non-adopted grounds of rejection on September 23, 2009. A1182-86.

On December 16, 2011, the Board issued its decision on Appeal, affirming the final rejection of claims 1, 4, and 5 as obvious under 35 U.S.C. § 103(a) in view of the combination of Grindle, Schnittker, and Roeder. A3, A7. The Board did not address any other grounds of rejection made by the Examiner because it found those grounds "unnecessary" to review in view of its affirmance based on the specified combination. A44. The Board also affirmed the Examiner's decision not to adopt the additional grounds of rejection proposed by Bridgeport that were the subject of the cross-appeal. A50. On January 27, 2012, Arlington filed a Request for Rehearing. A54. That Request was denied by the Board on January 1, 2013. A62. This appeal followed.

INTRODUCTION

This reexamination was initiated by Bridgeport, Arlington's direct competitor in the field of electrical connectors. Over the past thirteen years, Bridgeport's serial infringement of Arlington's patented inventions have led to no less than seven cases in the Middle District of Pennsylvania, all of which have been resolved in Arlington's favor, resulting in four judgments of infringement, three permanent injunctions, one preliminary injunction, and one judgment of contempt for violating a permanent injunction. Three of these cases have resulted in appeals that this Court resolved in Arlington's favor. *Arlington Indus., Inc. v. Bridgeport Fittings, Inc.*, 477 F. App'x 740 (Fed. Cir. 2012); *Arlington Indus., Inc. v. Bridgeport Fittings, Inc.*, 632 F.3d 1246 (Fed. Cir. 2011); *Arlington Indus., Inc. v. Bridgeport Fittings, Inc.*, 345 F.3d 1318 (Fed. Cir. 2003). Bridgeport filed the present request for *inter partes* reexamination after Arlington filed a lawsuit for Bridgeport's infringement of claim 1 of the '831 Patent.

The '831 Patent invention relates to a better way to install armored or metal clad cables into electrical junction boxes. When an electrician wires electrical fixtures, there is often only a single hole ("knockout") of a junction box available to bring power to and/or away from the fixture. A1085(¶6). Consequently a "duplex" connector is often needed by the electrician to connect two cables with conductors to the one knockout. One construction project may require thousands

of duplex connectors, A1068; even a small to mid-sized electrical construction company installs somewhere between 200 to 500 duplex connectors a week. A1119(¶¶1, 3).

While duplex connectors are not new, the duplex connector developed by Mr. Thomas Gretz, who is the sole inventor of the '831 Patent and a Vice President and General Manager at Arlington, A1073(¶¶2-3), is. Gretz invented a duplex connector that allows installers to easily snap the cables into place (without tools), and then snap the connector and its connected cables into a knockout (also without tools). As a result, the invention has provided substantial labor savings and has contributed to safer installations for electricians, who are commonly installing duplex connectors above floor level, in ceilings of buildings, standing or working from ladders or scaffolding, A1074(¶7); A1085(¶6). Gretz's tool-free SNAP^{2}IT® duplex connectors have been commercially successful, despite selling for a premium price over conventional duplex connectors, which Arlington also sells. A1074(¶5); A1080(¶5). Arlington's customers praise the significant time and labor savings derived from using the tool-free SNAP^{2}IT® duplex connectors and are willing to pay a premium to obtain those benefits. A1119-28; *see Arlington Indus., Inc. v. Bridgeport Fittings, Inc.*, C.A. No. 3:06-CV-1105, 2011 WL 2927817, at *4 (M.D. Pa. July 18, 2011) (Arlington has sold 40 million duplex connectors comprising eight percent of its total sales).

The Board decision to invalidate Gretz's claims 1 and 5-6 under 35 U.S.C. § 103(a) based on a purported combination of three references—dating from 10 to 80 years before Arlington's invention—was based on an improper construction of certain limitations, a misunderstanding of what the prior art actually teaches, hindsight reconstruction, and a failure to evaluate the secondary considerations. The Board erred as a matter of law and its decision should be reversed.

STATEMENT OF FACTS

I. Background

A. The Technology

Before Arlington's family of inventions, the most common method of attaching electrical cable to a junction box was an electrical connector with a threaded lock nut, which had to be screwed into the junction box. *Arlington*, 632 F.3d at 1249. The disadvantage was that, after matching the threads of the lock nut to the threads of the connector, the user then had to use two hands, one inside of the junction box, to screw the lock nut until it was secured tightly to the connector. *Id*. Difficult-to-reach junction boxes further complicated the job. *Id*.

And before Arlington's invention, the most common way to secure the cables into the electrical connector was by a clamping mechanism that attached the two incoming cables to the connector. Generally, that mechanism required one or more screws to "secure" the cables within the connector. A1085(¶6) In the early designs, as shown below with the 847A, the screws pressed directly against the electrical cable, but could cause problems by penetrating the insulation covering the wire. A2558 (1:20-25).

847A (A465)

Today, in most conventional duplex connectors, the screw tightens a clamp that presses against the wire covering. A2558(1:26-30). Two of Arlington's prior art connectors that illustrate the clamp style conventional duplex connectors are depicted below:

SG3838 (A466)

846 ST (A471)

Conventional duplex connectors, such as those shown above, require electricians to use a screwdriver to tighten the screw or clamping mechanism down to create a friction fit to hold the armored cable in place. A1085(¶6). If the connector did not include the spring steel adaptor at the front end like the 846ST above, a wrench is further needed to tighten the threaded lock nut to affix a connector like the SG3838 to the junction box. A1085(¶6). Consequently, using conventional duplex connectors is a labor intensive endeavor, particularly when it is not uncommon for a typical commercial building to have hundreds or thousands of duplex connectors. A1068.

Moreover, to "secure" the cables to the connector, an electrician must tighten the screws *after inserting the cables into the connectors*. When using a conventional duplex connector to wire lighting fixtures, one of the most common uses, an electrician would typically have to work with tools and both hands while standing atop a ladder or scaffolding in the ceiling space of a building. A1074-

75(¶7). In short, not only did conventional connectors take a significant amount of time to install, but installations could also be dangerous.

B. The ’831 Patent and Its Commercial Embodiments

The ’831 Patent, which issued on February 18, 2003, stems from an application filed on August 29, 2001, and claims priority as a continuation-in-part to application Serial No. 09/373,427 dated August 13, 1999 (“the ’427 parent application”).

The ’831 specification describes two “snaps” performed by the invention of claim 1: “The present invention relates to cable terminations and more particularly to duplex or two-wire cable terminations that snap into place and include snap-on cable retainers, neither of which requires twisting for locking.” A79(1:13-17).

Claim 1 of the ’831 Patent states:

> 1. A duplex electrical connector comprising:
>
> a) a housing having a cylindrical outbound end, a generally oval inbound end, and an interior channel linking said inbound and said outbound end;
>
> b) a pair of parallel openings in said inbound end;
>
> c) a tubular spring steel cable retainer secured in each of said openings in said inbound end for accepting separate cables, said retainers including a set of inwardly extending tangs to receive and engage said

> separate cables inserted from said inbound end and guide said separate cables toward said cylindrical outbound end in a manner that said separate cables are advanced to said outbound end, said inwardly extending tangs restricting removal of said separate cables by force applied on said separate cables from said inbound end; and
>
> d) a tubular spring steel adapter secured to said cylindrical outbound end of said housing, said adapter having outwardly extending tangs.

A81-82(6:64-7:14).[1]

This Court is already familiar with the first "snap" performed by the limitations of element (d) from *Arlington*, 632 F.3d at 1251. The "tubular spring steel adapter…having outwardly extending tangs," is an adapter made of spring steel, which is secured to the outbound end of the housing, and allows the duplex connector to "snap" into place in the knockout of a junction box just as it allows a single connector to snap into place. *Compare id.* at 1249 to *id.* at 1251.

This snapping feature was a significant advance because it allowed for a quick connection to the junction box as compared to the prior art, which generally employed a threaded locknut to attach the connector to the junction box. *Id.* at

[1] Claims 3 and 4 have been confirmed. A3. Arlington did not separately argue for the patentability of claims 5 and 6 to the Board, thus these claims stand or fall with claim 1.

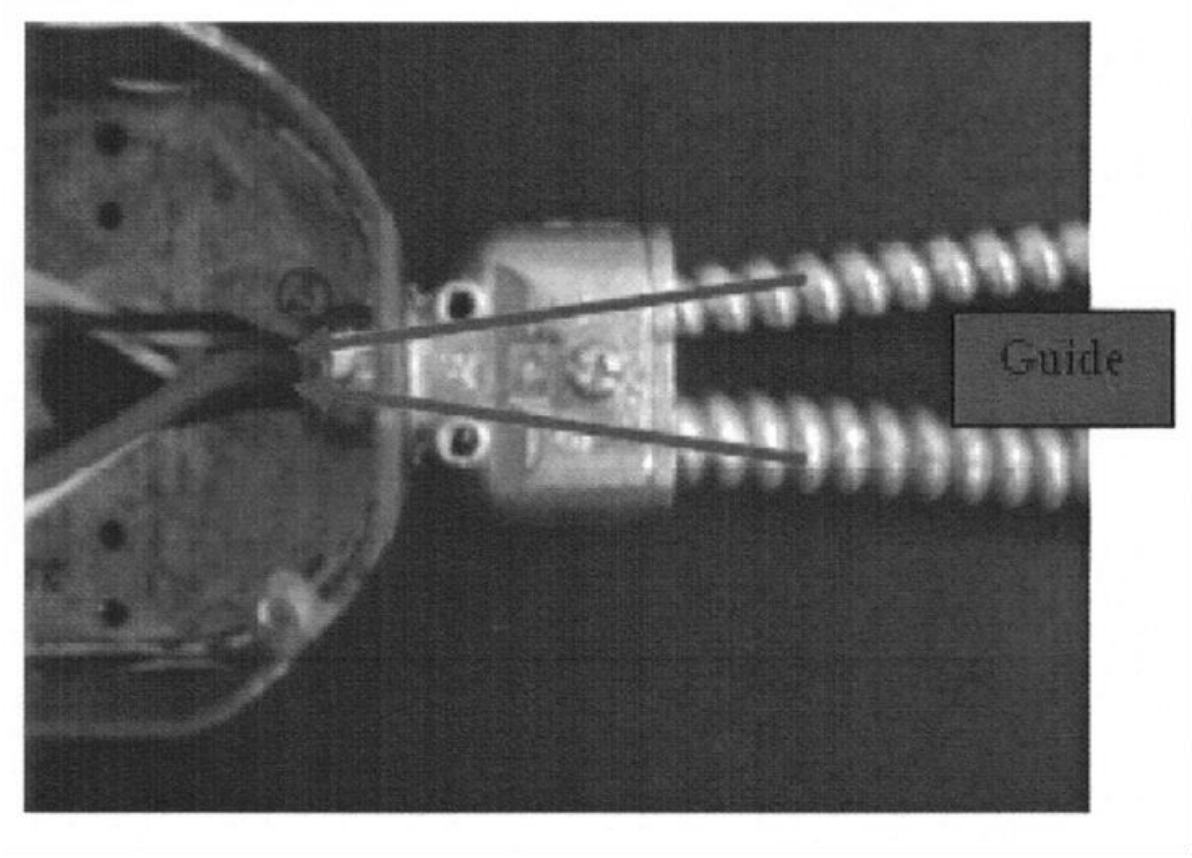
1249; *see also* A1085(¶6). And it is a feature that Gretz employed in 1998 in a first modification of Arlington's conventional duplex connectors—sold under the SNAP-TITE® name. A1080(¶4, *e.g*., 846ST). But the first-generation SNAP-TITE® duplex connector still needed tools to connect the cables to the connector. *Id.* In other words, the tubular spring steel adapter is only one of the two snapping features that allows for tool-free cable installation using the '831 SNAP^{2}IT® duplex connector.

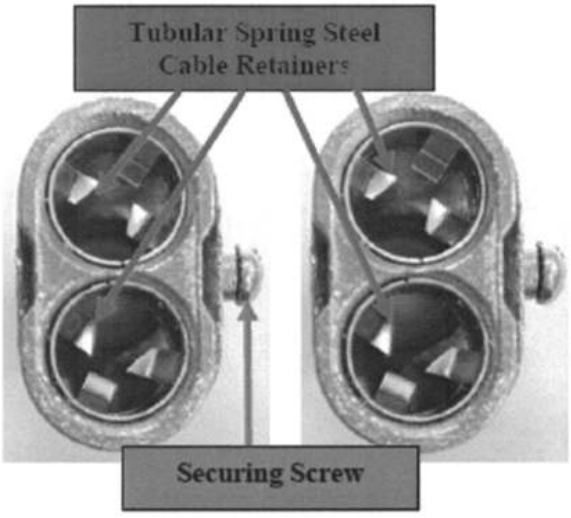
The second snapping feature, which is critical to the tool-free installation, and to this appeal, is referred to in the limitations relating to the two spring steel retainers and their inwardly extending tangs in element (c). A82(7:2-11). Arlington manufactures and distributes three commercial embodiments of the claim 1 invention, which includes the tubular spring steel adapter at the outbound end and the two spring steel retainers in the opening of the inbound end with their inwardly extending tangs. A1078(¶2). They are sold under the product names 3838AST, 3838ST, and 4040AST, but all are referred to as SNAP^{2}IT® duplex connectors and have the same general appearance.[2] *Id.*

[2] The AST suffix refers to an insulated "throat," which is simply a plastic bushing inside the outbound end of the connector that serves to keep the wiring from getting scuffed.

During the reexamination proceeding, Gretz demonstrated how the SNAP[2]IT® duplex connectors practice claim 1 of the '831 Patent in a declaration that included a claim chart comparing the commercial product, limitation-by-limitation, with annotated pictures of the commercial product and explanations. A491-95[3]; A1078-80(¶¶2,5). A1074(¶6); A491-95; A1085-87(¶7). Two representative pictures from the claim chart are depicted below.

[3] The Gretz Declaration and its referenced attached claim chart were provided to the Examiner in the reexamination proceeding, but the chart was inadvertently omitted by Arlington in its Evidence Appendix on appeal, though it was referred to in both of Arlington's briefs. A328, A126 n.26. Bridgeport provided a copy of the chart to the Board with its responsive brief. A432 n.5; A358(¶11).





A491-95. This duplex SNAP^{2}IT® product corresponds to features depicted in Figures 1 and 6 of the '831 Patent, reproduced below, and as Gretz explained, embodies every aspect of the claimed invention. A1080 (citing A491-95).

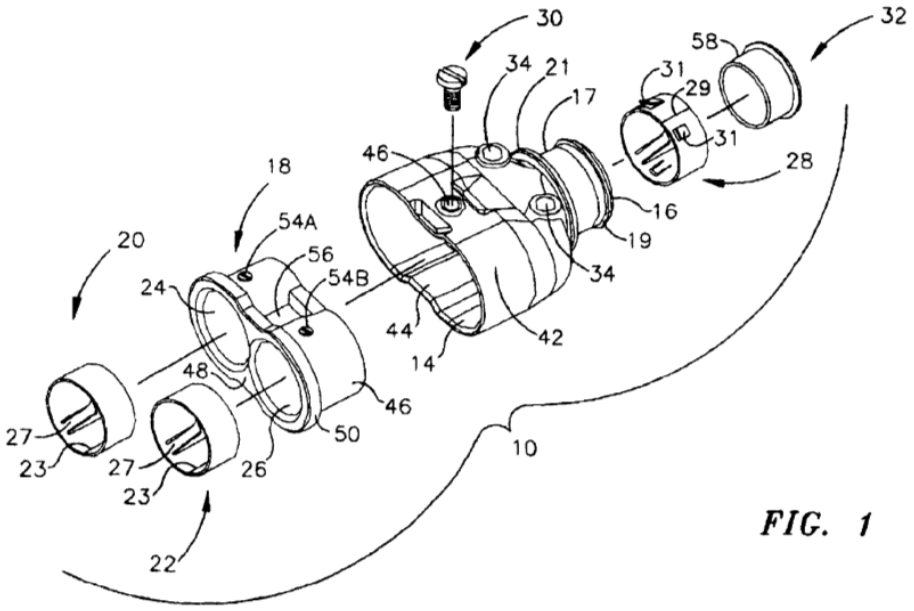


FIG. 1

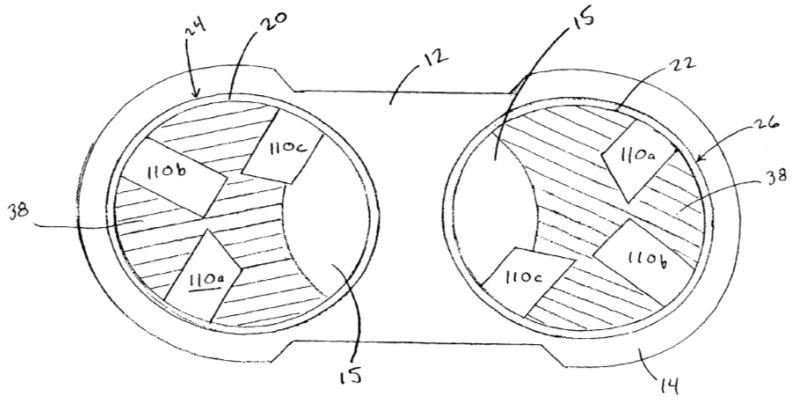


Fig. 6

A75-76. Gretz noted that all three models of the SNAP^{2}IT® duplex connectors, the 3838AST, 3838ST and 4040AST, embody every aspect of the claimed invention. A1078-80(¶¶2,5); A1074(¶6).

Aside from including the tubular spring steel adapter secured to the outbound end (A495), the SNAP^{2}IT® duplex includes two retainers in parallel openings of the inbound end (A492) which permit the second snapping action onto

the cables. A79(1:15-16). To perform this snapping action, the retainers must be secured in the openings of the inbound end, A82(7:2-3); A492; A1087(¶7), and include a set of inwardly extending tangs to receive and engage separate cables inserted from the inbound end and guide the separate cables toward the cylindrical outbound end in a manner that the separate cables are advanced to the outbound end. A82(7:3-7); A492-93. The tangs also restrict removal of the separate cables by force applied on the cables from the inbound end. A82(7:9-11); A494.

As shown in Figure 6 of the patent, reproduced below, tangs 110a, 110b, and 110c are oriented to receive and engage an armored cable inserted from the inbound end of the housing and guide the cable toward the opening in the outbound end of the housing in a manner that separate cables are advanced to the outbound end. A81(6:39-45). This orientation is identical to the commercial embodiment.

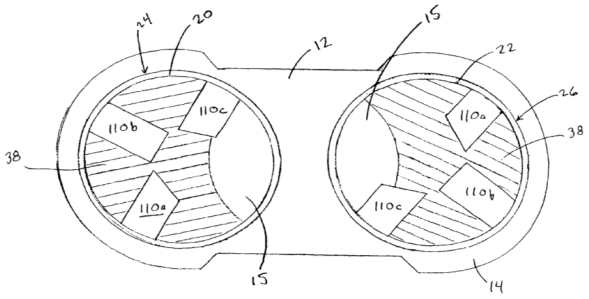
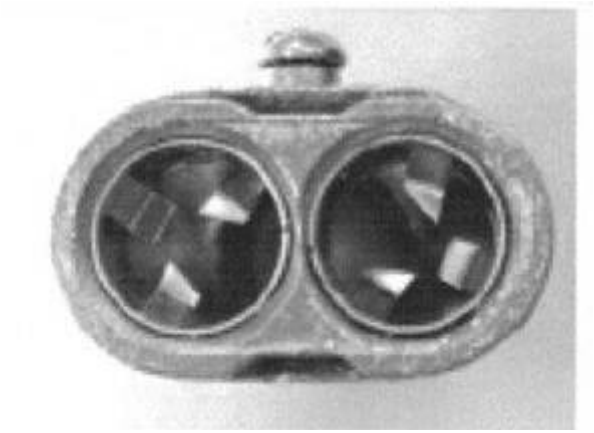


Fig. 6



Compare A78 *with* A492.

The spring steel cable retainers of the patented invention enable an installer to simply push or "snap" two cables into the inbound end of the connector without tools. A1085-87(¶7); A79(1:15-16) (duplex "include[s] snap-on cable retainers, neither of which requires twisting for locking."). Thus, the SNAP^{2}IT® duplex connector provides a spring steel adapter that snaps into the box and the dual retainers with inwardly extending tangs that snap onto the armored cable, significantly reducing installation time over conventional duplex connectors. A1074-75(¶¶6-7).

C. The Commercial Success of the Invention

The SNAP^{2}IT® duplex connectors have enjoyed tremendous commercial success. During the first eight years after launch, these new products sold almost as many units as all 10 of Arlington's conventional duplex models combined, which include conventional clamp connectors and Arlington's SNAP-TITE® connectors with only the single "snap" of the spring steel adapter at the outbound end. A1074(¶¶4-5); A1078-84(¶¶3-5). In other words, the SNAP^{2}IT® duplex connectors accounted for approximately 50% of Arlington's duplex connector sales.

During that initial eight-year period, the SNAP^{2}IT® duplex connectors produced revenue of about $17.4 million, based on a sales volume of about 24.8 million units, A1078(¶3). During that same period, the other 10 prior art duplex

models produced combined revenue of only $10.2 million, based on a sales volume of about 25.9 million units.[4] A1080(¶5). This is despite the fact that SNAP^{2}IT® duplex connectors are 75% more expensive on average than the other duplex models without the patented dual retainers. A1080(¶4).

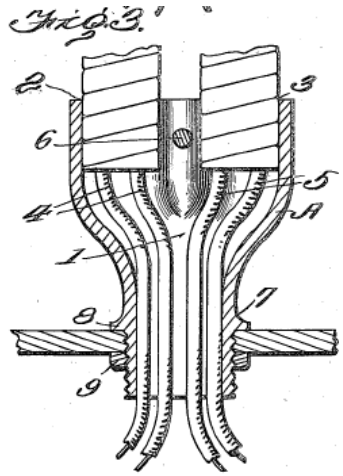
Arlington's customers shed light on why the more expensive SNAP^{2}IT® duplex connector models are so commercially successful; they are willing to pay a premium to obtain Arlington's SNAP^{2}IT® duplex connectors because the design facilitates the insertion of the two cables, eliminated the use of tools in installing multiple cables, and significantly cut installation time when compared to conventional duplex connectors. A1120(¶¶4-5), A1123(¶5); A1127(¶4). Arlington '831 SNAP^{2}IT® duplex connectors were similarly praised in an industry journal, in an article entitled, "Get Big Savings in Tiny Packages," for the connectors ability to save the contractor time and money because of the ability to "snap the cables in and go, all without tools." A1067-71.

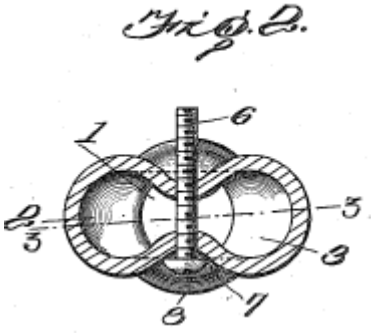
[4] Bridgeport's expert, Kenneth Kiely, acknowledged in a deposition that selling 25 million units of the three SNAP^{2}IT® duplex models in that time frame was a "big number." A1110(232:13-19); A1112(235:13-25).

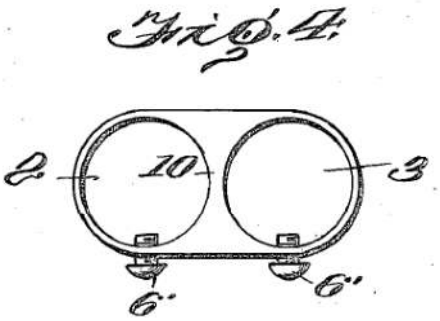
II. The Prior Art

A. Grindle

U.S. Patent No. 1,295,304, to Grindle issued on February 25, 1919. It discloses a duplex connector that accommodates armored wires. A2505(1:9-13). As shown in Figures 2 and 3, reproduced below, the connector employs an adjusting screw 6 to hold the armor of the wires in the connector. A2505(1:42-48). As Grindle explains, the opposing walls of inlets 2 and 3 are brought together by adjusting the screw. A2505(1:42-48). An alternative embodiment is depicted in Figure 4 in which the two adjusting screws are used. A2504. The Board found that Grindle teaches a duplex electrical connector with a pair of parallel openings in the inbound end, but fails to disclose that it retains the metal clad cables using a tubular spring steel cable retainer. A24. Grindle also does not teach a spring steel adaptor on the outbound end for snapping into the box, as required by the ’831 Patent. Grindle uses a traditional threaded lock nut to be secured to the junction box.



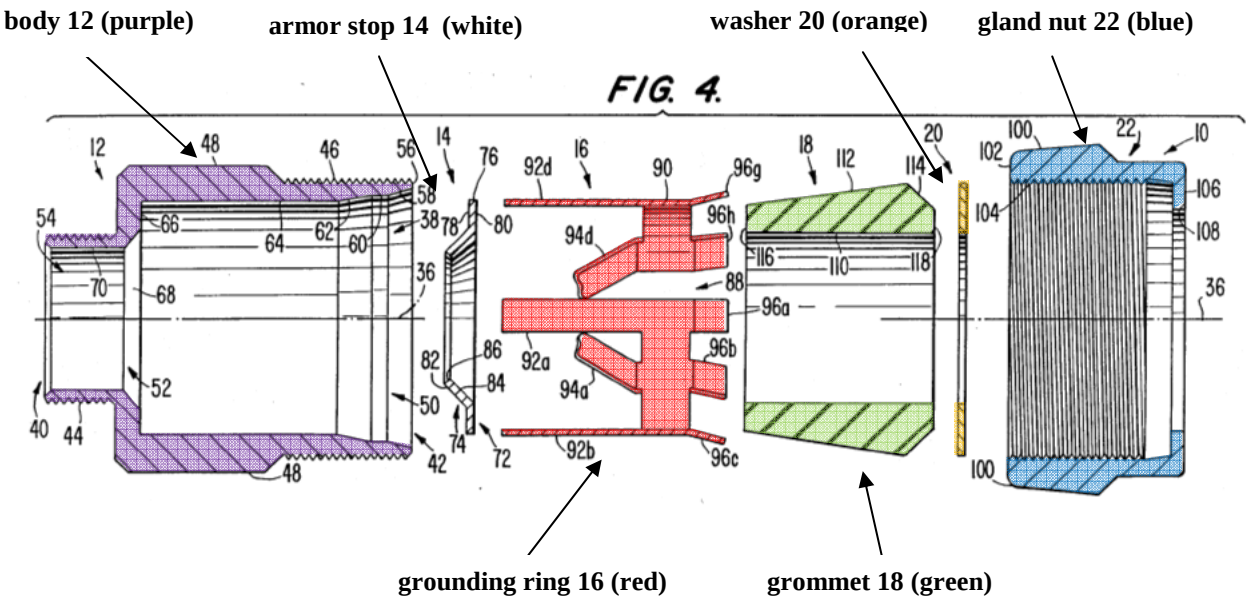




B. Schnittker

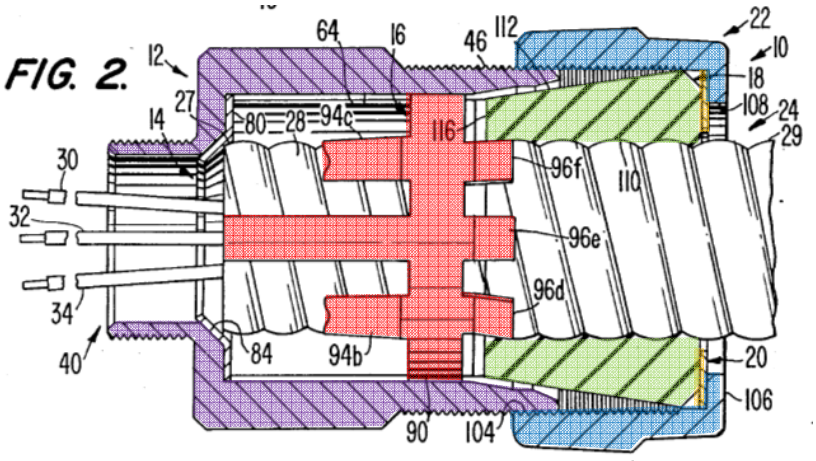
U.S. Patent No. 4,885,429, to Schnittker issued on December 5, 1989. It discloses a connector for a single metal clad cable.

Figure 4 of Schnittker, reproduced below with coloring added, illustrates these 6 pieces that make up the connector (10) in an unassembled state.



The connector 10 is made up of a threaded tubular body 12, that mates with a threaded tubular closure 22 ("gland nut"). A2520(3:31-39). When mated, the body and gland nut form a housing. Within that housing is an armor stop 14, a grounding ring 16, a rubber grommet 18, and a washer 20. *Id*. The grounding ring contains angled tines 94a-d, and angled trailing tabs 96a-h. A2521(5:41-44).

To assemble the connector: (1) the armor stop is first fitted into the body; (2) the grounding ring is then "slidably" inserted into the body; (3) the grommet is then inserted to engage the trailing tabs of the grounding ring; (4) the washer is placed in the gland nut; and (5) the gland nut is fitted over the grommet and is rotated so as to become threaded onto the body. A2522(7:1-21)



Schnittker explains that the angled leading tines engage the outer surface of the armored cable when it is inserted into the housing. A2522(7:33-37). However, the tines do not by themselves restrict movement of the cable or removal of the cable when force is applied. Rather, as Schnittker explains, when the gland nut is "further rotated" after insertion of the cable, the grommet is compressed creating an interference fit with the outer jacket of the armored cable. A2522(7:39-47). Once this second tightening has occurred, with the aid of a wrench after the insertion of the cable, the grounding ring cannot move rearward due to its engagement with the washer and gland nut, and so assists the angled leading tines in resisting removal of the cable by rearward force. A2522(7:48-53). In short: the grounding ring needs four other components and the use of tools to restrict removal of the cables.

C. Roeder

U.S. Patent No. 2,744,769, to Roeder issued May 8, 1956. It discloses a bushing for temporarily connecting a single insulated wire to a junction box that includes a gripping finger attached to the internal wall of the connector (A2511(2:38-70)), and a metal fastener with outturned lugs that will retract and snap back after insertion into the junction box wall (A2511(2:13-42)). The bushing of Roeder is not made of spring steel.

III. The Reexamination

During the reexamination, the Examiner issued rejections of claims 1, 5, and 6 based on 35 U.S.C. § 103(a) based on four separate prior art combinations. Only one combination is relevant to Arlington's appeal—the combination of Grindle, Schnittker and Roeder. This is so because after affirming the Examiner's rejection of all the claims based on this combination, the Board contended "it [was] unnecessary to reach the propriety of the Examiner's decision to reject those claims on a different basis," and it declined to do so. A44 (emphasis added). The Board chose to do this even though Arlington appealed each of the rejections of the

claims to the Board, presenting numerous reasons why the Examiner was in error as to each.[5]

A. The Board's Purported Prima Facie Case of Obviousness

The Board found that Schnittker's grounding ring, which engages the armored cable, creates a force that resists rearward forces on the cable and would thus perform the retaining function. A24. However, the Board referred to the "secured" limitation inconsistently, each time omitting or modifying claim 1's requirement that the retainer be secured "in" each of the "openings" of the inbound end of the connector. In one sentence alone the Board alternately referred to Schnittker's grounding ring being secured "to" the "opening of Grindle's inbound ends" and then "to" the *inbound end*, but omitting the *opening*. A24-25. The Board omitted the *opening* yet again, when it found that "Schnittker's grounding ring is secured in the inbound end of the connector." A28. The Board also mistook the "second open end 42" of Schnittker's *body* for the inbound end of the

[5] The Board also affirmed the decision of the Examiner not to adopt the additional grounds of rejection proposed by Bridgeport in its request for reexamination. A50. In affirming that decision, the Board correctly determined that claim 1 of the '831 Patent should receive the benefit of the filing date of parent application. A48. In view of that determination, the Board concluded that each of the additional grounds of rejection proposed by Bridgeport were not invalidating because each include a reference which fails to antedate the filing date of claim 1. *Id*.

connector, when in fact Figure 2 illustrates the second open end 42 is in the middle of the *assembled* connector. A28; A2516. The Board did not identify any retention mechanism in Schnittker that would be located within the opening of the inbound end of a fully assembled connector.

The Board stated that once the grounding ring of Schnittker was secured to each opening of Grindle, the tines of the two different grounding rings would "be capable of accepting separate cables and guiding them from the inbound ends to the outbound end." A25-26. But the Board immediately admits that the tines of Schnittker would only guide the cable *straight* down the bore, and states that the *shoulders* of Grindle would assist in guiding the cable to the offset outbound end and thus "would benefit from the same geometry which, in part, guides the cables described in the '831 Patent." A26-27.

Nevertheless, the Board concluded that one of ordinary skill would have found it obvious to substitute the Schnittker grounding ring for the screw that Grindle used to hold armored clad cable because it "would provide Grindle's duplex connector with an enhanced capability of preventing or restricting the cables from forces that would otherwise remove the cables from their inbound ends." A31. The Board contended that the "combination would maintain equal resistance on each inlet in a way that the single screw of Grindle could not." *Id.* Although evidence established that the combination of Grindle and Schnittker

would not actually work, the Board asserted that the combination involves a mere substitution that one of ordinary skill would have "reasonably expected" would work as claimed. A29-A31.

The Board also relied on Roeder's temporary bushing for teaching an adapter secured to the outbound end of Grindle and asserted that it would have been obvious to make Roeder's bushing and fastener of "spring steel to allow for continual reuse to address the increase in weight" of metal clad cables, rather than the insulated wires used by Roeder. A34.

B. Secondary Considerations

The Board also rejected Arlington's evidence of secondary considerations that rebutted any conclusion of obviousness based on Grindle, Schnittker and Roeder. A35-43. Most significantly, the Board concluded that Arlington failed to establish a nexus between the claims of the '831 Patent and its commercial success or the long-felt unsolved need in the industry. A36; A43. The Board disregarded the declarations by Arlington's customers (A1119-28), who were experienced electricians and electrical inspectors, for failing to "provide a thorough, element-by-element analysis of the claimed duplex connector" (A37). Mr. Gretz did, however, submit an element-by-element comparison in a claim chart showing that the same commercial products discussed by the customers embodied every element

of claim 1. A1080(¶5); A491-95; A1085-87(¶7). The Board failed to even mention Gretz's claim chart in its opinion.

The Board also dismissed evidence from Gretz's declaration establishing the large sales of the commercial embodiment because a large portion of Arlington's SNAP^{2}IT® duplex connector sales included "an insulated throat." A37-38. The Board failed to note, however, that several of Arlington's conventional duplex connectors are also sold with an insulated throat nor did it address why consumers would pay 75% more for the SNAP^{2}IT® duplex connectors, if not for the patented features.

The Board also rejected Arlington's sales evidence because it did not indicate "any change in market share required to show a nexus," A38-39, despite the fact that Bridgeport's own expert admitted that Arlington and Bridgeport are the only two competitors who sell these types of connectors, A1099(213:11-214:4) and Bridgeport did not make their relevant sales information public.

In addition to ignoring Mr. Gretz's claim chart, the Board also failed to address testimony by Bridgeport's Engineering Manager, that Arlington's SNAP^{2}IT® duplex connectors practice claim 1 of the '831 Patent, and that $25 million in sales is a large number. Nor did the Board respond to testimony that Bridgeport's own customers requested that Bridgeport make a cross-product just like Arlington's SNAP^{2}IT® duplex connector, and that those customers are willing to pay a

premium for these snap-in duplex connectors with retainers because of they can safely be installed without tools, resulting in a major labor savings for the contractor. A1078(¶3); A1110(232:13-19); A1112(235:13-25); A1100(215:7-14); A1104-05(221:5-12; 222:10-223:1)

SUMMARY OF THE ARGUMENT

The Board erred in finding claims 1, 4, and 5 of the '831 patent invalid under 35 U.S.C. § 103(a) as being obvious over the combination of Grindle, Schnittker, and Roeder. That rejection is improper for a number of reasons.

First, the Board misconstrued the limitation requiring that the retainers be "secured in each of said openings in said inbound end for accepting separate cables." Rather, the Board only analyzed whether the grounding ring of Schnittker is "*secured to* each of the openings in Grindle's inbound end" and that "Schnittker's grounding ring is *secured in the inbound end* of the connector." Neither of those statements are the limitation recited in claim 1. Instead, as the plain language of the claim states, and as the specification describes, the limitation means that the retainer is secured *within or inside* the openings of the inbound end. Accordingly, Board's analysis is wrong as a matter of law and its obviousness determination should be reversed. Moreover, Schnittker does not teach or suggest such a retainer, as the grounding ring of Schnittker is not a retainer, and it sits in a location that is much deeper within the connector and unquestionably *beyond the*

opening in the inbound end of the connector. And, in any event, the Board's rationale to support the combination of various parts of Schnittker, Grindle, and Roeder – three references dated 70 years apart– was substantially flawed and a clear example of hindsight reconstruction, especially since the evidence before the Board clearly established that a person of ordinary skill in the art would not make the proposed combination.

Second, the Board also erred in construing another requirement of the claimed retainers, that the "tangs" must "guide" and "advance[]" cables towards the outbound end in a duplex connector arrangement. For this limitation, the Board disregarded that the "tangs" were to provide the *guiding* and *advancing*, including by acknowledging that "Schnittker's set of inwardly leading tines would guide a metal clad cable *straight* down the bore," which is *not* the direction of the offset outbound end in a duplex connector. Rather, the Board asserted that the *housing* of Grindle, instead of the required tangs of the retainer, would provide this claimed function. In view of this disregard of functional limitations of the "tangs," the Board erred as a matter of law. The Board's conclusion that Schnittker when combined with Grindle would meet this erroneously construed limitation was also wrong as a matter of law and should be reversed. Even if this Court finds that Schnittker's tines perform any guiding or advancing function, based on where the grounding ring sits within the connector, there is no support to find that Schnittker

teaches or suggests that its tines perform the guiding and advancing in the *opening of the inbound end* as required by claim 1. That Schnittker—a single connector—fails to teach or suggest this limitation is not surprising because it was not trying to solve the problem of inserting two separate cables toward one offset outbound end of a duplex connector. Any contrary conclusion that Schnittker's tines would provide guiding and advancing of a cable toward an *offset* outbound end in the duplex connector of Grindle would clearly be the improper result of hindsight reconstruction.

Third, the Board did not identify any prior art reference that disclosed or suggested "a tubular spring steel adapter." Rather, the Board found that Roeder teaches "an adapter," but not "a spring steel adapter." The Board cited no evidence that indicates that a person of ordinary skill would have redesigned Roeder using "spring steel." That baseless conclusion was nothing more than improper hindsight reasoning to fill in a missing limitation.

Fourth, the Board's also committed legal error in rejecting Arlington's evidence of secondary considerations, based primarily on its determination that Arlington failed to establish a nexus between its evidence and its covered products. Arlington established both that its "SNAP2IT" duplex connectors are commercially successful and that the products are commensurate with the claim limitations. Despite Arlington's prima facie showing of nexus, the Board failed to

consider Arlington's evidence of commercial success. In fact, the Board's opinion fails to discuss or rebut Arlington's claim chart illustrating element-by-element how its commercial embodiments practice the claim. The Board's decision also fails to discuss key testimony that Arlington submitted from Bridgeport's own Engineering Manager, and expert during the reexamination, that: (1) Arlington's SNAP^{2}IT® duplex connectors practice the patent; (2) that Arlington and Bridgeport's customers demand the patented features of a double snap-in duplex connector with an adapter on the outbound end and two retainers to snap-in the cables; (3) that the customers are willing to pay a premium price to get connectors with those features; and (4) that Arlington's sales of almost 25 million units were quite a large number. The Board committed reversible error when in failed to consider Arlington evidence of secondary considerations.

ARGUMENT

I. Standard of Review

Whether an invention is obvious is a question of law based on underlying facts. *In re Kotzab,* 217 F.3d. 1365, 1369 (Fed. Cir. 2000). This Court reviews questions of law de novo, *In re Lister,* 583 F.3d 1307, 1311 (Fed. Cir. 2009), and the PTO's factual determination for substantial evidence, *Rapoport v. Dement,* 254 F.3d 1053, 1058 (Fed. Cir. 2001)—i.e., whether a reasonable factfinder could have arrived at the agency's decision after examining the record as a whole, including

evidence supporting and detracting from the Board's decision. *Falkner v. Inglis,* 448 F.3d 1357, 1363 (Fed. Cir. 2006). "'Substantial evidence is more than a mere scintilla. It means such relevant evidence as a reasonable mind might accept as adequate to support a conclusion.'" *In re Gartside*, 203 F.3d 1305, 1312 (Fed. Cir. 2000).

II. The Invention of the '831 Patent Is Not Obvious

The Board erred as a matter of law in finding that Grindle combined with Schnittker and Roeder renders claims 1, 5 and 6 of the '831 Patent obvious. The three prior art references—dating back to 1919—did not properly establish a *prima facie* case of obviousness of the properly-construed claim limitations of independent claim 1. To make an obviousness determination, "[a]ll words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385 (CCPA 1970). The obviousness inquiry then requires the consideration of "whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. *KSR Int'l v. Teleflex*, 550 U.S. 398, 418 (2007). If a Board's findings do not support a *prima facie* case of obviousness, the rejection must be reversed. *See In re Glatt Air Techniques, Inc.*, 630 F.3d 1026, 1030 (Fed. Cir. 2011).

A. Schnittker, Alone or in Combination, Does Not Teach or Suggest a "Retainer Secured In Each of Said Openings in Said Inbound End for Accepting Separate Cables"

1. The Board Erroneously Construed Claim 1

The Board erred as a matter of law when it misconstrued the limitation that requires "a retainer that is secured in each of said openings of the inbound end." A82(7:3-5). This error is illustrated by the fact that the Board never once applied the prior art to the actual claim limitation. *See, e.g.*, A25 ("Schnittker's metal grounding ring is secured ***to*** each of the openings in Grindle's inbound end"; A24 ("neither Patent Owner's Specification (FF Sp1) nor the claim excludes Schnittker's grounding ring from being secured **to** the inbound end of the housing"); A28("Schnittker's grounding ring is secured **in the inbound end** of the connector")(emphasis added).

Contrary to the Board's holding, Claim 1 requires the retainer to be "secured *in* each of said *openings in said inbound end*" of the duplex connector. A82(7:2-3). As the plain language of the claim states (A82), and as the specification describes (see, e.g., A80-81(3:66-4:1, 4:43-46, 6:36-39)), this limitation means that the retainer is secured *within* or *inside* the openings of the inbound end. *See, e.g.*, *Motionless Keyboard Co. v. Microsoft Corp.*, 486 F.3d 1376, 1380 (Fed. Cir. 2007) (affirming construction of a claim limitation reciting a "concavity *in* said housing" and "forming a keyboard *within* said concavity" as requiring that all of the

individual keys of the device had to be *inside* the concavity and rejecting the patentee's argument that the tops of the keys themselves could form the concavity); *Gemstar-TV Guide Intern. Inc. v. ITC*, 383 F.3d 1352, 1372 (Fed. Cir. 2004) ("From these definitions, the ordinary meaning of 'storage means in a data processor' is a device capable of retaining data located *within* a data processing device or system.") (Emphasis added).

The retainers are consistently described and illustrated in the '831 Patent as "spring steel cable retainers 20 and 22 that [are] *insert[ed] into* a pair of parallel apertures or openings 24 and 26 in the inbound end...." A80(3:66-67) (emphasis added); *see also* Figures 1 and 6 reproduced below.

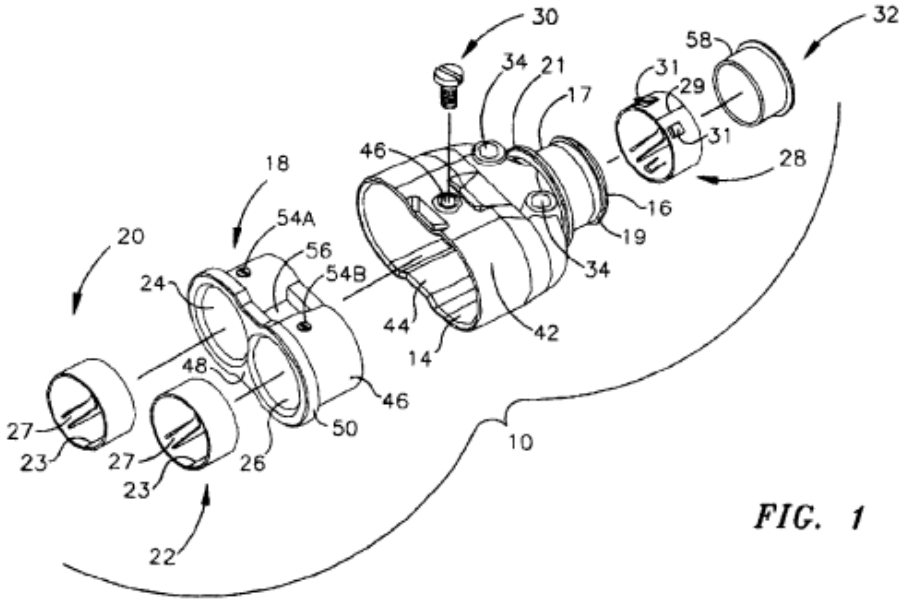


FIG. 1

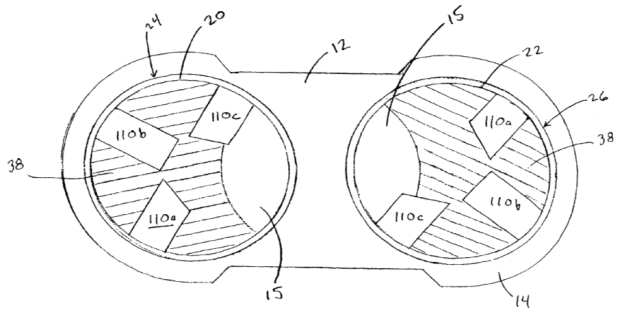


Fig. 6

In fact, there is not a single disclosure in the ’831 Patent wherein the retainers are secured anywhere except inside the openings of the inbound end. A73-82.

The Board disregarded the intrinsic record as well as the normal and ordinary meaning of “secured in” as it appears in claim 1 and instead asserted that Schnittker’s grounding ring would be “secured *to* each of the openings in Grindle’s inbound end” (A24-25). But “secured *to*” each of the openings does not mean “secured *in*” each of the openings, as claimed. *See Gemstar*, 383 F.3d at 1372 (“General use dictionaries define ‘in’ as ‘used as a functional word to indicate location or position in space or in some materially bounded object.’”). For example, as shown in Figure 1 of the ’831 Patent, the set screw 30, is secured to the inbound end, but is not within the inbound end. Similarly, the interior surface of the shoulders identified as 36 and 38 below in Figure 2 from the ’661 Patent

(A2564), is technically secured to the inbound end as part of the interior channel, but the shoulders are clearly not located in the openings of the inbound end.

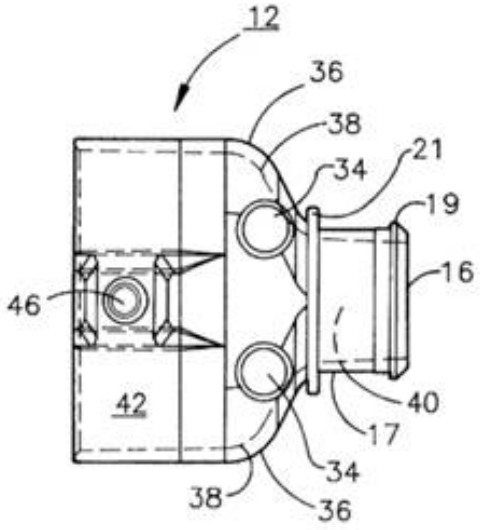


FIG. 2

Merely being "secured to" does not meet the claim limitation because, as Mr. Gretz explained to the Board, the "positioning of the retainers in the inbound end was important as the cables need to be snapped into the connector well before the connector bottlenecks towards the outbound end." A1087(¶7). Thus, the Board erred as a matter of law in interpreting claim 1 to require that the retainers merely be "secured to"—rather than "secured in"—the openings of the inbound end of the connector, as required. *See Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561, 1577 (Fed. Cir. 1987) ("It was a clear error of law for the district court to have ignored the limitations clearly set forth in the claims.").

The Board similarly misconstrued the same claim limitation when it later concluded that "Schnittker's grounding ring is secured in the *inbound end* of the

connector" (A28), ignoring that the limitation requires the retainer to be "secured in each of said *openings* in said inbound end." By reading out "openings" from the claim limitation, the Board again erred in its construction as a matter of law. *Aspex Eyewear, Inc. v. Marchon Eyewear, Inc.*, 672 F.3d 1335, 1348 (Fed. Cir. 2012) (holding that district court erred in construing phrase that read the word "free" out of claim limitation reciting "rearwardly directed *free* end"). An interpretation, like the Board's, that conflates the term "openings" with "inbound end" eliminates the meaning of the term "openings," and disregards the significance of the retainer being "secured in the openings of said inbound end" as explained above. *Id.*

In short, the Board never actually found that the combination of Schnittker and Grindle taught or suggested the properly construed limitation, "retainer secured in each of said openings in said inbound end," (A24-25, 28). This is legal error. The Board's obviousness determination based on this erroneously interpreted claim limitation should be reversed. *See Panduit.*, 810 F.2d at 1576-77 ("When the prior art is compared with erroneously interpreted claims, findings of differences between the prior art and the claims will necessarily be clearly erroneous.).

2. Schnittker Does Not Disclose or Suggest a Retainer Secured in the Opening of the Inbound End of the Connector

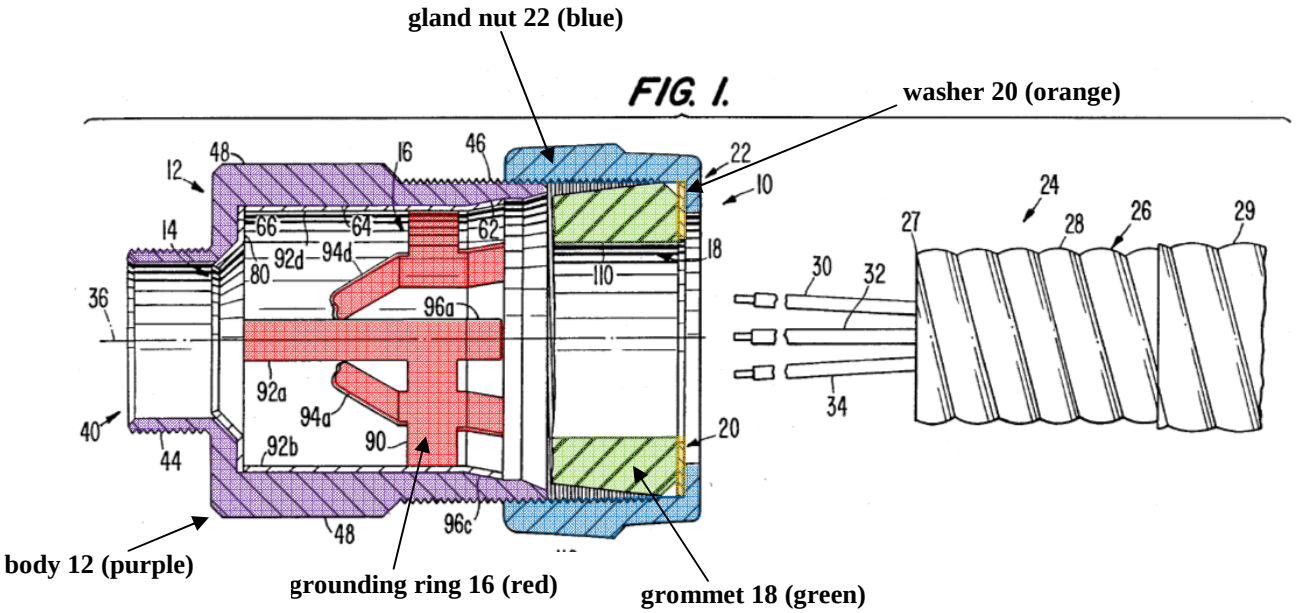
The Board's erroneous construction of this claim limitation is further evidenced by its reliance on Schnittker, which does not disclose a retainer nor does

it teach or suggest being a retainer secured in the opening of the inbound. At the outset, Schnittker's grounding ring is not a "spring steel retainer" as required by claim 1. Rather, it is a removable component designed to ground the cable. A2519(1:41-2:6). Although there is some resistance on cables applied by the grounding ring, it is not capable of restricting removal of said separate cables by force applied on the cables from said inbound end. A82(7:9-11). Rather, Schnittker's tines 94a-d of the grounding ring are designed to engage, based on their "natural resilience," the outer surface of the cable in such a manner that it provides contact to that metal surface, and as such it creates a grounding. A2522(7:33-38). Schnittker, instead, describes retaining the cable by creating an "interference fit" between the grommet 18 and the outer jacket of the cable based on the rotation of the gland nut 22 compressing the grommet 18 to radially reduce the grommet's internal surface 110. A2522 (7:44-47).

Even if this Court finds that Schnittker's grounding ring is a retainer, it is clearly not a retainer in the "opening[] in said *inbound* end." To the contrary, Schnittker's grounding ring sits deep within the through passageway towards the *outbound* end of the assembled connector, beyond any location that could reasonably be considered an "opening" in the *inbound* end of an connector, as required by claim 1 of the '831 Patent. A81(6:64). Therefore, the grounding ring

of Schnittker does not teach or suggest a retainer in the *opening* of the connector's *inbound* end.

Similarly, Schnittker also fails to disclose a grounding ring that is *secured in* the opening of the inbound end of the connector. As Schnittker repeatedly describes, Figure 1 (reproduced below) represents the connector 10 in its fully assembled state, ready to receive a cable. A2521(6:65-66); *see also* A2522(7:10-24) (noting that the gland nut 22 and grommet 18 are assembled prior to installation of a cable).[6]



[6] In contrast, Figure 4 of Schnittker shows an exploded view of the various parts that make up the connector shown in Figure 1. A2520 (3:5-7). As detailed below, the Board misunderstood Schnittker and analyzed the disassembled connector, confusing the inbound end of the "body" 12 with inbound end of the "connector" 10.

That fully assembled connector includes a tubular body 12 (highlighted in purple), a gland nut 22 (highlighted in blue), a washer 20 (highlighted in orange), an armor stop 14, and a grounding ring 16 (highlighted in red). A2516.

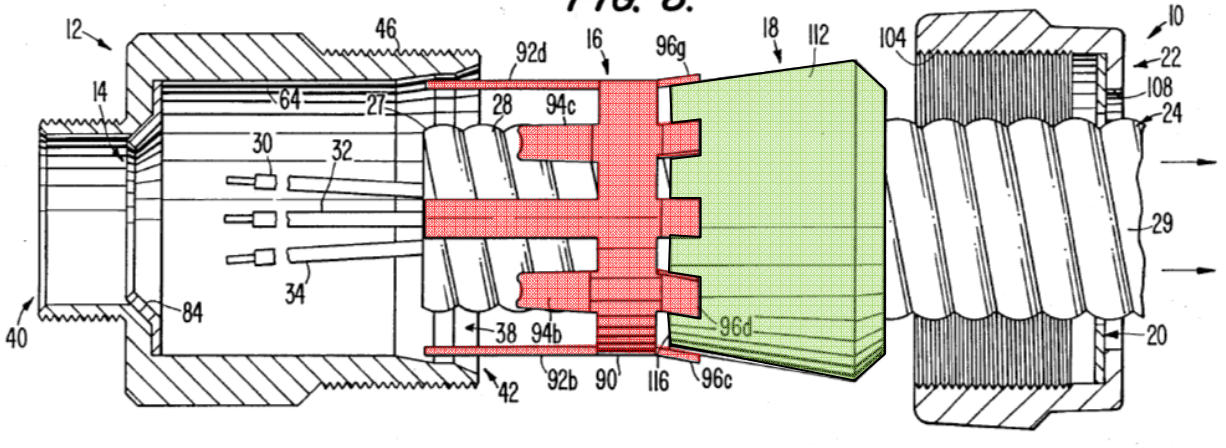
The connector of Schnittker only functions when these components work together to secure the grounding ring in its required location (indicated in Figure 1), which is toward the *outbound* end of the connector: e.g., the armor stop 14 sits at the base of the tubular body 12, the grounding ring 16 is slidably received in the tubular body 12 and abuts the armor stop 14, the rubber grommet 18 engages the grounding ring 16, the washer 20 engages the grommet 18 and the gland nut 22 threadedly engages with the tubular body 12 and applies an axial compression force to secure all of the components within connector. A2520(3:31-39); A2522(7:10-31; 7:44-47). The Board erred when it find that a *grounding* ring secured near the *outbound* end with the aid of multiple components in combination suggests a *retaining* ring with all the functions required by claim 1 secured in the opening of the *inbound* end of the connector.

As shown in Figure 1 of Schnittker, the "opening" of the assembled connector 10 can only be the open area within the internal surface 110 of the grommet 18, because that is the only opening located at the inbound end of the connector. A2516. And as Figures 1 and 2 illustrate, that is where the cable is inserted. A2516. As Figure 1 also illustrates, the body 90 of the grounding ring 16

sits within the cylindrical surface 64 of the through passageway of the tubular body 12, beyond the grommet 18. A2516, A2522(7:1-9). That location is unquestionably *beyond* the *opening* o*f the inbound end* of the connector.

Because the grounding ring is designed to engage and be retained by that larger surface (e.g. 64) in the through passageway of the tubular body 12, and because it also requires outwardly extending tabs 96a-g to surround the exterior of the front end 116 of the grommet 18 (to cause the engagement between the grommet and grounding ring discussed above), it does not teach securing the grounding ring inside of a hole (e.g. 110) that sits at the inbound end of the connector. Figure 8 (showing a partially disassembled connector), reproduced below, illustrates that the grounding ring is not intended to be inside the interior of the grommet 18 because of the tabs (96c, d, and g shown) that surround the *exterior* of the front end 116 of the grommet 18.

FIG. 8.



A2518.

Therefore, Schnittker does not teach or suggest a spring steel cable retainer that is "is *secured in the opening* of the inbound end of the connector." And combining Schnittker with Grindle, as the Board maintained, does not cure this deficiency because the grounding ring (with its required securing mechanism of at least the grommet and gland nut) would still sit in the same location when combined with Grindle.

Because the Board has not established that the prior art teaches or suggests a retainer secured in the opening of the inbound end, it has not established a *prima facie* case of obviousness and the rejection should be reversed. *See In re Glatt*, 630 F.3d at 1030 (reversing Board's obviousness determination after concluding that the Board failed to make out a prima facie case of obviousness because prior art did not teach claim limitation).

3. The Board Fundamentally Misunderstood Schnittker

In applying Schnittker to claim 1, the Board also fundamentally misinterpreted Schnittker when it found that the grounding ring is secured within the "inbound end of the *connector*" based on figures illustrating the *disassembled* connector. In particular, the Board determined that open end 42 was the inbound

end of *the assembled connector*. A28.[7] That is wrong. Opening 42 is the opening of the tubular body 12, A2520(4:3-19), which is merely a *component* of the assembled connector 10. A2521(6:65-66). By contrast, as discussed above, when the connector is fully assembled, that tubular body 12 opening 42 is located in the *middle* of the connector, which is not the inbound end of the connector. (*See, e.g.* A2516, Figures 1 and 2). Thus, the Schnittker grounding ring is clearly not secured in the "inbound end" of the connector (let alone the opening of the inbound end, as required).

Because the Board's finding that Schnittker discloses a grounding ring secured in the inbound end of the connector is not supported by substantial evidence, its conclusion of obviousness based on this combination should be reversed as a matter of law.

4. The Board Also Erred in Finding Schnittker Combinable With Grindle

The Board's findings that Schnittker was combinable with Grindle were also not supported by substantial evidence "because the prior art did not include any hint or suggestion or even common sense reason" to combine Schnittker's five-

[7] The Board's flawed analysis is based on Figure 4, which it refers to in its finding of facts at A14. That Figure, however, illustrates an unassembled connector. A2520 (3:5-7).

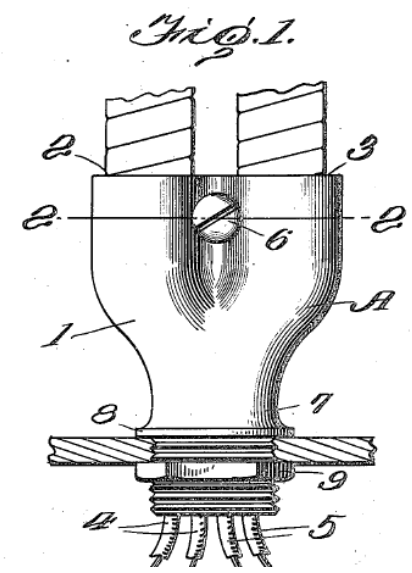
piece retaining apparatus to the oval inbound end of Grindle. *See Crocs, Inc. v. Int'l Trade Comm'n*, 598 F.3d 1294, 1310 (Fed. Cir. 2010).

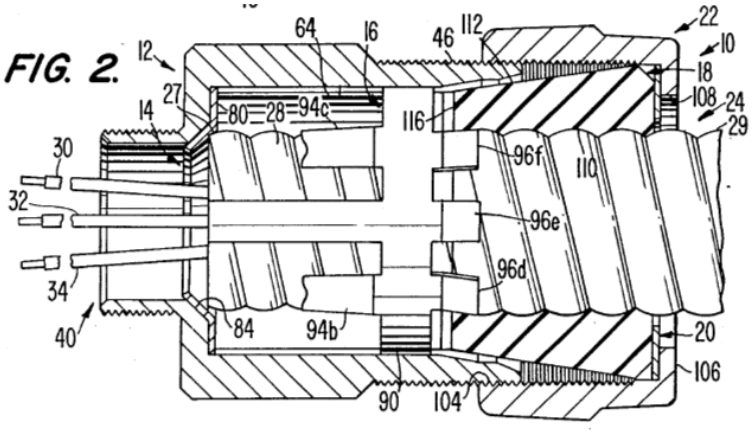
Specifically, the Board concluded that that Schnittker's grounding ring "would be *useful* for retaining the metal clad cables used in the multiple wire connectors of Grindle and an *appropriate substitute*" for Grindle's single retaining screw. A30. In other words, even though Grindle already secures cables through the use of one screw that causes clamping of the metal body around the cables, the Board theorized that adding the five-piece Schnittker apparatus—grounding ring, rubber grommet, gland nut, and washer—twice for the pair of parallel openings — would cause Grindle to retain cables better.

Even Bridgeport's own expert, Mr. Kiely, confirmed that "it would be highly unlikely" that anyone would combine the grounding ring, rubber grommet and gland nut disclosed in Schnittker with the inbound end of a duplex connector to retain two cables in it. A1109-10(231:5-14). Arlington's expert has confirmed the same. A1074-75(¶10). Thus, both Arlington and Bridgeport's experts established that one skilled in the art would not have been motivated to combine Schnittker with Grindle.

By merely looking at Grindle (Figure 1 below, A2504) and Schnittker (Figure 2 below, A2516), it is clear that one skilled in the art would not be motivated to combine the references because it would require "substantial

reconstruction" to Grindle's inbound end to accommodate the five different components of Schnittker's retaining apparatus. *See In re Ratti*, 270 F.2d 810, 813 (CCPA 1959) (finding no motivation where combination "would require a substantial reconstruction and redesign of the elements" of the prior art). At a minimum, the inbound ends of Grindle, which are not threaded, would have to be reconstructed into separate tubular openings with threaded ends to accept two separate gland nuts. This is no "mere substitution" as the Board contended. A30.





Moreover, one of ordinary skill in the art seeking to make a labor-saving connector would not be motivated to combine references that would actually *increase* the labor costs over the prior art duplex connector (tightening two gland nuts vs. one Grindle's one screw), not to mention increase the material cost of the connector by adding parts. *See, e.g.*, A1085(¶6), A1123(¶5); A1127(¶4).

The "considerable time lapse" between the prior art and the filing date of the '831 Patent also suggests that the invention of claim 1 was not obvious to try. *See Leo Pharm. Prods., Ltd. v Rea,*, Appeal No. 2012-1520, 2013 WL 4054937, at *9 (Fed. Cir. Aug. 12, 2013) (Fed. Cir. Aug. 12, 2013) (prior art references filed between seven and twenty-two years before patent at issue was filed). Here, the Board stretched to find a motivation to combine references that were filed eighty-four (Grindle), forty-seven (Roeder), and twelve (Schnittker) years before the invention of claim 1, when that invention in fact "solved...a problem that the prior art did not recognize and a problem that was not solved for over a decade." *Leo*, 2013 WL 4054937, at *6.

Accordingly, the Board's conclusion that Schnittker is properly combined with Grindle lacks substantial evidence and should be reversed.

B. The Prior Art, Alone or in Combination, Does Not Teach or Suggest "Tangs...That Guide Said Separate Cables Towards Said Cylindrical Outbound End In a Manner that Said Separate Cables Are Advanced To Said Outbound End"

1. The Board Erroneously Ignored the Requirement that the Retainer's Tangs Guide and Advance the Cables

The Board also erred as a matter of law in construing a second requirement of the claimed retainers, namely that the tangs must "*guide said separate cables towards said cylindrical outbound end* in a manner that said separate cables are *advanced to said outbound end*." A82(7:4-9). The Board simply ignored that the retainer's tangs must provide the guiding and advancing function. This is made especially clear by the Board's statement that claim 1 "*merely* recites 'a set of inwardly extending tangs,'" A27 (emphasis added), and its reliance on an element of Grindle's housing, not Schnittker's tines, to establish that the function of guiding and advancing was met by the combination of Grindle with Schnittker. A25-26. Because the Board did not consider all the words in the claim in determining that the prior art met this limitation, its decision should be reversed. *In re Wilson*, 424 F.2d at 1385 ("[a]ll words in a claim must be considered in judging the patentability of that claim against the prior art.").

2. The Board's Disregard of Claim 1 Underlies Substantial Factual Errors Related to "Guiding" and "Advancing"

Having disregarded the retainer's guiding and advancing functions from claim 1, the Board erroneously stated that Grindle's "shoulder component" would "aid...in guiding the cables to the outbound end," and thus the combination of Grindle and Schnittker meets the requirement that the "duplex connector…guide the separate cables toward the outbound end in a manner that the separate cables are advanced to the outbound end." A25-26. The Board thus found "that the inwardly extending tines of Schnittker's grounding ring (FF S3) incorporated into Grindle's duplex connector would function to receive, engage, and guide or permit forward movement of the metal clad cables from the inbound end through the grounding ring and towards an outbound end, in a manner commensurate with the language of independent claim 1." A26.

But whether the shoulders of Grindle would provide "aid" is irrelevant to whether the prior art teaches that the *tines* engage the separate cables and guide them *towards* the outbound end so as to advance them *to* the outbound end as required by claim 1. And it is similarly irrelevant that the '831 specification describes that "housing 12...includes shoulder portions 36 whose interior surfaces 38 are smooth to guide cables inserted through inbound end 14 through internal volume 40 of the housing to the cylindrical outbound end 16." A26 (citing FF Sp2, at A12)). Whatever *additional* "geometry, which in part, guides the cables described in the '831 Patent," (A27), has no bearing on the plainly claimed

function of the tangs. *See Panduit*, 810 F.2d at 1576-77 ("The district court improperly dismissed the novel structural claim limitations that defined the disposition, positioning, relationship, and operation of the elements in the claims....The district court pointed to nothing in the prior art that suggested any of the *claimed* constructions."); *Aspex*, 672 F.3d at 1348 (holding that district court erred in construing phrase that read word out of a claim limitation).

As the Board recognized, in a duplex connector, the outbound end is located offset from each parallel opening in the inbound end. A26. This is shown in Figure 6 of the '831 Patent as well as Figures 2 and 3 of Grindle.

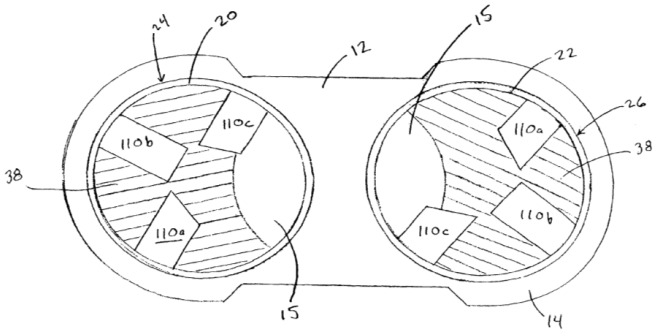
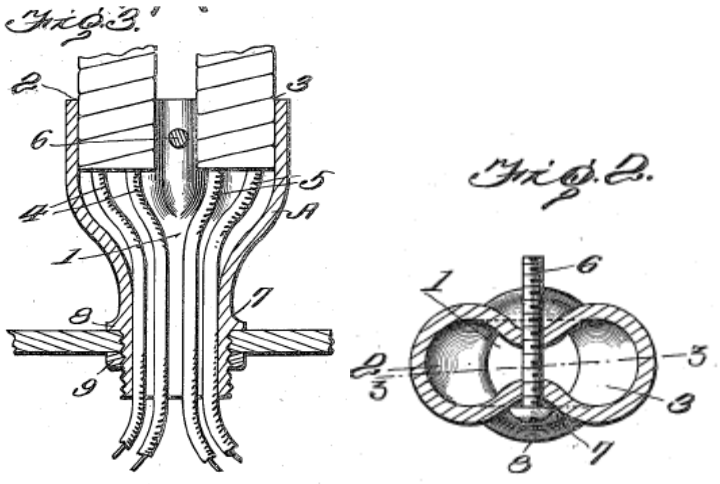


Fig. 6



As one of ordinary skill in the art well knows, metal clad cables are typically substantially stiff. As the specification explains, the orientation of the tangs is one manner of ensuring the tangs provide guiding and advancing of these stiff cables to the offset outbound end, A81(6:39-45). Arlington explained this to the Board in its effort to demonstrate why Schnittker's tines do not provide the guiding and advancing function required in a duplex connector. A313. A cable proceeds through Schnittker's grounding ring *straight* down a *single* bore. A310, A313. The grounding ring does not guide, either by pushing or any other mechanism, toward the *offset* outbound bore.

The Board seemed to misunderstand the import of Arlington's argument because it noted that it "must be careful not to read a particular embodiment appearing in the written description into the claim if the claim language is broader than the embodiment," A27. But Arlington was not asserting that claim 1 requires the orientation of tines disclosed in Figure 6; it was simply asserting that there is nothing in Schnittker that teaches or even suggests tangs that guide "*two separate* cables" toward the *offset* outbound end, not "*the*" one cable of Schnittker *straight* toward its outbound end. A313. The Board's maxim about not reading limitations into the claim does not permit the Board to ignore the express requirement of the claim that the *tangs* must perform a guiding and advancing function. *See, e.g.*, *Panduit Corp.*, 810 F.2d at 1576-77.

In view of the Board's blatant disregard of the *guiding* and *advancing* limitations, it erred as a matter of law, and its conclusion that Schnittker when combined with Grindle would meet this limitation (A25-26) was wrong as a matter of law and should be reversed. *See Panduit Corp.*, 810 F.2d at 1576-77.

3. Schnittker Combined with Grindle Did Not Disclose or Suggest Tangs That Guide or Advance Cables Towards the Outbound End of a Duplex Connector

That Schnittker's grounding ring tines are angled inwardly does not establish that they are "equivalent" to the claimed "inwardly extending tangs," A27, because they do not provide the guiding and advancing function required of the tangs of claim 1. Indeed Schnittker's tines do nothing to provide this function, because by the time the grounding ring is secured, the armored cable is already in its final position and cannot be guided or advanced by the grounding ring. First, the "distal end 27 of the [armored] cable abuts the armor stop." A2522(7:28-29). Only then, after the cable cannot advance or be guided further, do the gland nut and grommet secure the grounding ring and restrict rearward movement of the cable. A2522(7:44-53). Thus, the tines provide no guiding and advancing function.

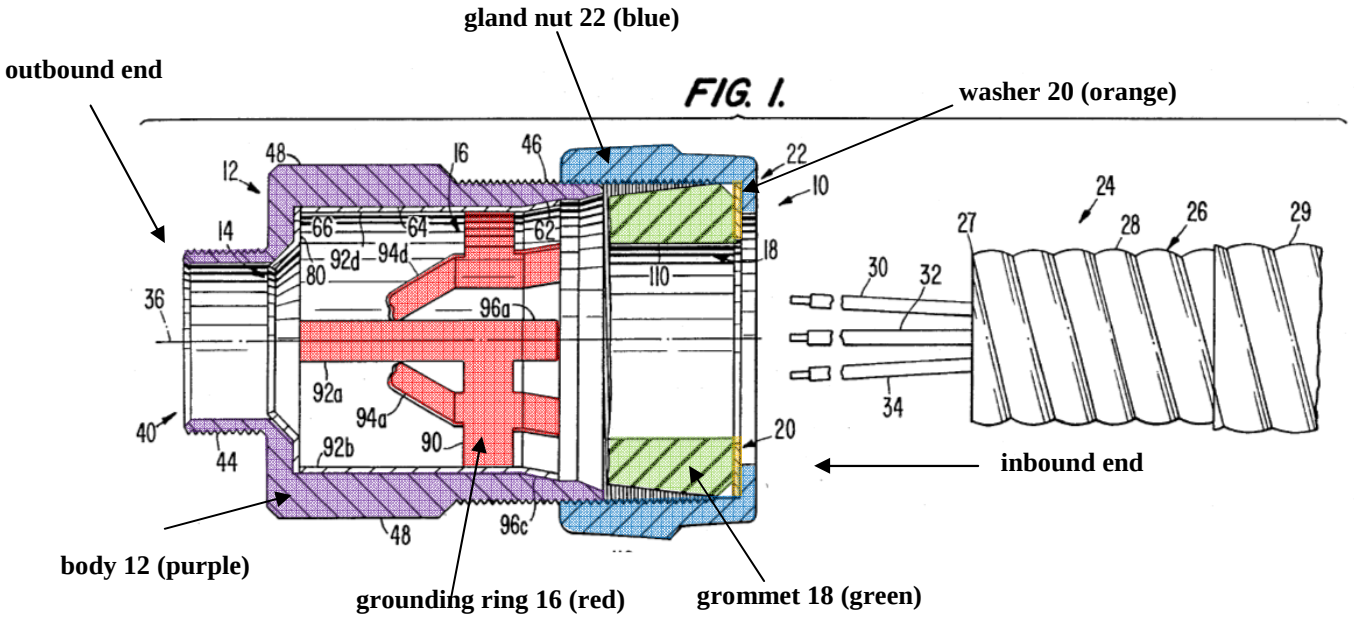
The Board acknowledged that Schnittker's tines do not have any particular orientation that would perform the claimed guiding and advancing function when it agreed with Arlington that "Schnittker's set of inwardly leading tines would guide a metal clad cable *straight down the bore*," A26, and turned to the unclaimed

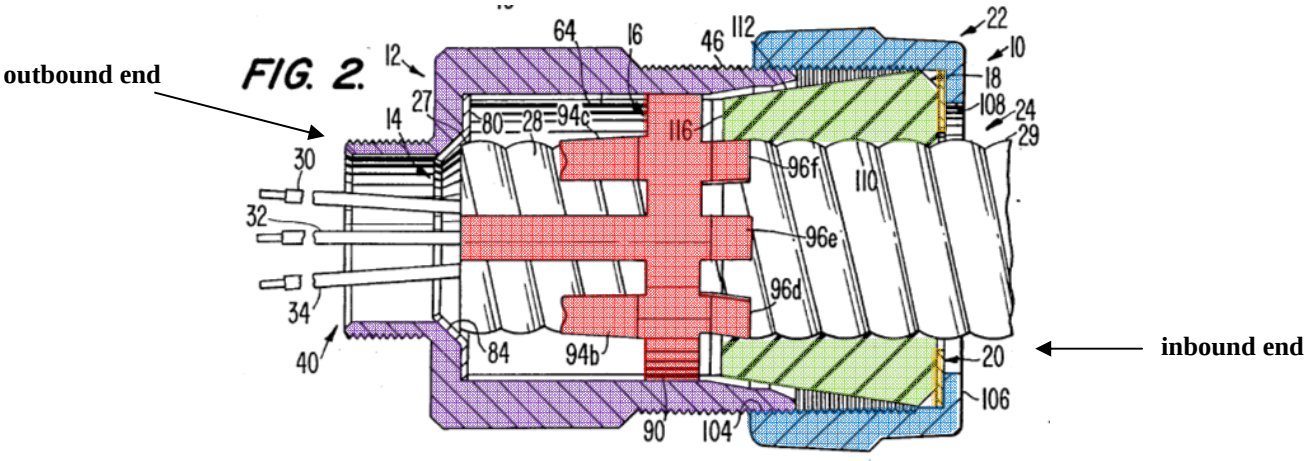
shoulder element of Grindle to accept the cables from the inbound end and guide them to the outbound end, A26. The Board recognized that tines which simply permit forward movement down the bore of Schnittker (or Grindle), as do Schnittker's tines, do not guide toward the outbound end of the duplex connector. Any contrary conclusion that Schnittker's tines would teach or suggest to a person of ordinary skill in the art any guiding and advancing of a cable toward an *offset* outbound end in the duplex connector of Grindle would clearly be the improper result of hindsight reconstruction. *Grain Processing Corp. v. Am. Maize Prods. Co.*, 840 F.2d 902, 907 (Fed. Cir. 1988) ("Care must be taken to avoid hindsight reconstruction by using 'the patent in suit as a guide through the maze of prior art references, combining the right references in the right way so as to achieve the result of the claims in suit.'").

Schnittker is concerned with connecting a single cable to a junction box. A2515 (abstract). Its reasoning for including tines in its grounding ring have nothing to do with guiding and advancing an armored cable toward an offset cylindrical opening. Schnittker's grounding ring was designed to improve the nonreusable connectors of the prior art. A2519(1:41-45). Its purpose was to ground the cable and enable it to be easily removed from the connector and the cable so that the connector as well as the grounding ring could be reused. A2519(1:41-2:6). Schnittker explains that the angled tines assist in keeping an

inserted cable centered relative to the body and permit extraction of the ring when the cable is removed because the tines engage the outer surface of the cable, nothing more. A2519 (7:39-44)

To achieve all of these results, Schnittker places the grounding ring within cylindrical surface 64 of the through passageway of the body 12, close to the outbound end, not in the opening of the inbound end, A2516 (*See* Figures 1 and 2, set forth below), as required by the ’831 Patent, A82(7:2-11).

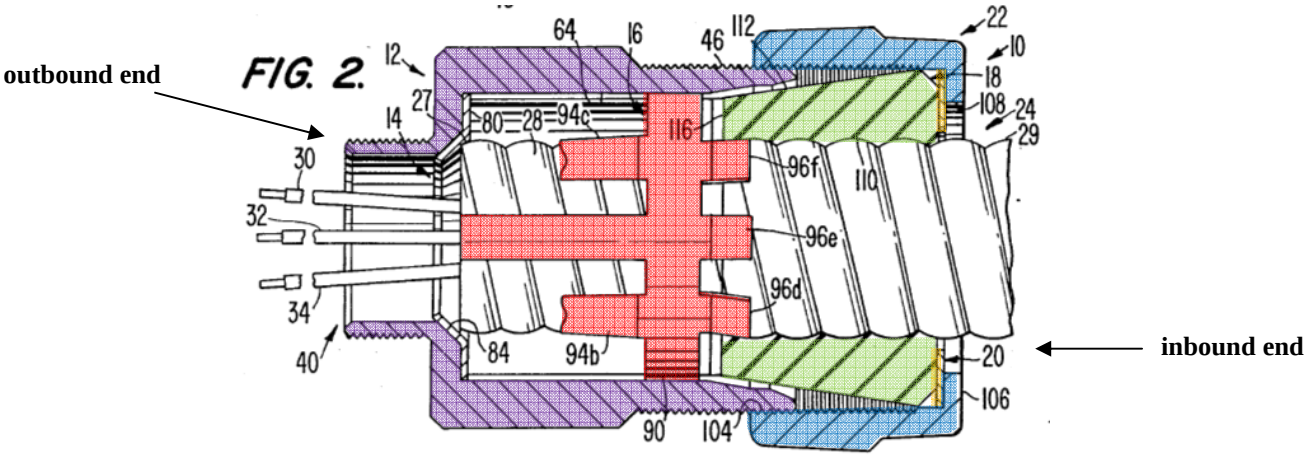




The location of Schnittker's tines of the grounding ring so close to the outbound end itself demonstrates that there is no guiding of the cable to the outbound end provided by the tines. Thus, there is nothing to suggest that the tines of Schnittker, when combined with Grindle, would be capable of guiding two separate cables in a manner to advance two separate cables to the offset outbound end of the duplex connector of Grindle. And there is certainly nothing to suggest that Schnittker's ring with its equally four flexing tines would function to guide a cable to an outbound end that is offset from the inbound end wherein the ring must be secured (as required by the '831 Patent), rather than simply guide the armor clad cable straight down to the shoulder opposite the inbound end in a duplex connector such as Grindle.

4. Schnittker Combined with Grindle Would Not Disclose or Suggest Tangs That Provide Any Guiding or Advancing in the Opening of the Inbound End of a Connector

Even if Schnittker's tines performed any guiding function when they engaged the cables in the "through passageway," that does not meet the claimed requirement that the guiding function occur in the opening of the inbound end. A82(7:6-7). Rather, the angled tines 94a-d of the grounding ring 16 can only make contact with a cable at the outbound end of the through passageway. A2516 (Figure 2, tines 94b and 94c shown).



And, even if Schnittker were combinable with Grindle, it would not be possible to modify the tines to provide the guiding at the opening of the inbound end of the connector because the tines of the Schnittker grounding ring cannot be located in the inbound end. That is because, as discussed in detail above, *supra* Part II.A.2, the trailing tabs 96a-h of the grounding ring engage the exterior of the front end 116 of the grommet 18 and, only through the axially compression of the grommet into the trailing tabs, can the grounding ring be secured within the connector. A2522(7:10-31; 7:44-47). This mechanism causes the grounding ring

to be secured deep in the body of the connector, not in the opening of the inbound end as required by claim 1.

Further, as Mr. Gretz explained to the Board, the function of guiding and advancing must occur in the opening of the inbound end because the duplex connector has a "bottle neck" that only allows the conducting wires and not the surrounding armored cable to extend into and through the outbound end. A1086. *See supra* Part II.A.2. The '831 Patent addresses this specific problem. Schnittker does not: its purpose was to improve the nonreusable connectors of the prior art A2519(1:41-45), not to guide and advance separate cables to a single outbound opening.

In light of the foregoing, there is no substantial evidence to support that the prior art teaches or suggests the functional guiding and advancing limitation of the tangs, let alone performs this function by a retainer with tangs secured in the opening of the inbound end, as required by claim 1. Consequently, the Board has failed to establish a *prima facie* case of obviousness and the rejection should be reversed.

C. Roeder, Alone or in Combination, Does Not Teach or Suggest a "Tubular Spring Steel Adapter"

The Board did not identify claim element (d), "a tubular spring steel adapter," in any of the prior art references. Instead, the Board asserted that Roeder—which discloses a bushing that "temporarily or removably" fastens

insulated wires (as opposed to metal clad cables)—teaches an "adapter." A34, A2511(1:31-34). And to compensate for not identifying any prior art reference that teaches or suggests a "*spring steel* adapter," the Board baldly asserted that "it would have been obvious to make Roeder's retainer and adapter of spring steel to allow for continue reuse and increase in weight." A34. Thus, despite relying on three separate references, dating over 70 years apart, to piece together the limitations of claim 1, the Board acknowledged that such combination still did not meet the claim limitations. But the Board concluded that it would have been obvious for a person of ordinary skill in the art to redesign the bushing of Roeder using the spring steel recited in claim 1. Such a conclusion was wholly improper for a number of reasons.

First, as this Court has previously determined, "spring steel adapter" is a distinct limitation that means "an adapter made from spring steel." *Arlington*, 632 F.3d at 1256. As this Court described, the spring steel adapter "is typically...formed from spring steel such as SAE 1095 tempered spring steel or its equivalent." *Id.* at 1253. Yet, the Board dismissed the import of the claim limitation and concluded, with no evidence, that a person of ordinary skill in the art would redesign the Roeder bushing using specially formed spring steel. A34. That spring steel was not obvious to those skilled in the art, however, is evident from the more than 40 years that have elapsed between Roeder and Arlington's invention.

See Leo, 2013 WL 4054937, at *9. ("The elapsed time between the prior art and the '013 Patent's filing date evinces that the '013 Patent's claimed invention was not obvious to try.") The Board's conclusion that one skilled in the art would have selected the exact material recited in claim 1 was nothing more than improper hindsight. *See KSR*, 550 U.S. at 421.

Second, the Board's assertion that a person of ordinary skill in the art would redesign Roeder using "spring steel" does "not constitute the disclosure [of a spring steel adapter] in the prior art." *See In re Rijckaert*, 9 F.3d 1531, 1532 -33 (Fed. Cir. 1993). Thus, the "prior art relied upon does not disclose, suggest, or render obvious the claimed invention, either individually or when combined." *Id.* Accordingly, the Board did not establish a *prima facie* case of obviousness for claim 1 of the '831 Patent.

Third, the Board acknowledged that Roeder was designed for a completely different type of connector (i.e., for insulated wires instead of metal clad cables), and that it would not be *capable* of being combined, *as disclosed*, with Schnittker and Grindle because it would be too weak to function as an "adapter" for those metal clad cable connectors due to the "increased weight of the metal over the insulated wire used in Roeder." A34. Because Roeder—if not redesigned to use the '831 Patent's claimed spring steel—would not work when combined, it actually teaches away from use in such a combination. *In re Gordon,* 733 F.2d

900, 902 (Fed. Cir. 1984) ("If references taken in combination would produce a 'seemingly inoperative device,'...such references teach away from the combination and thus cannot serve as predicates for a prima facie case of obviousness.").

Accordingly, for all of the foregoing reasons, the Board failed to present a *prima facie* case of obviousness, and its rejection should be reversed.

III. The Board Erred In Rejecting Probative Objective Evidence of Non-Obviousness

Before reaching a conclusion regarding obviousness, the Board must consider evidence of secondary considerations. *In re Rouffet*, 149 F.3d 1350, 1355 (Fed. Cir. 1998). The secondary considerations are "essential components of the obviousness determination," and can be the "most probative evidence of nonobviousness in the record," especially to help avoid the "trap of hindsight." *Custom Accessories, Inc. v. Jeffrey-Allan Indus., Inc.*, 807 F.2d 955, 960 (Fed. Cir. 1986). During an *inter partes* reexamination, it is particularly important that the Board give the objective indicia their proper weight and not treat them as an afterthought. *Leo*, 2013 WL 4054937, at *11. Where the Board has failed to give adequate consideration to the secondary considerations, as it did here, its rejection to the claim cannot stand. *In re Sullivan*, 498 F.3d 1345, 1353 (Fed. Cir. 2007) (reversing the Board's determination of obviousness because it failed to consider relevant rebuttal evidence of secondary considerations).

A. Arlington's Evidence Established Commercial Success of the Claimed Invention

Arlington's SNAP^{2}IT® duplex connectors are unquestionably a commercial success, with revenue of over $17 million, based on a sales volume of over 24.8 million units from 1999 to June 2007 (A1078(¶3)), which was acknowledged by Bridgeport's Engineering Manager and expert in the reexamination proceedings, Kenneth Kiely, to be "a large number." A1110(232:13-19); A1112(235:13-25). In the eight years after their introduction, the SNAP^{2}IT® duplex connectors acquired almost 50% of Arlington's total duplex connector sales, despite being sold, on average, at a premium of 75% more per unit than Arlington's conventional duplex connectors. A107(¶¶4-5); A1078-84(¶¶3-5). This sales data demonstrated an average yearly increase of 87% in the SNAP^{2}IT® duplex connectors from market introduction to 2006 (the last full year for which data was available). *Id.*; A543. A sales volume increase of this magnitude does not occur when the advance embodied in a patent is nothing more than predictable result. A543-44; see *KSR*, 550 U.S.at 417.

The Board, however, disregarded Arlington's substantial evidence of commercial success claiming that Arlington failed to establish a nexus between the evidence of non-obviousness and the claimed invention. A36-37; A43. In so doing, it erred as a matter of law. It is well established that a "prima facie case of nexus is made when the patentee shows both that there is commercial success, and

that the product that is commercially successful is the invention disclosed and claimed in the patent." *Crocs,* , 598 F.3d at 1310-11.

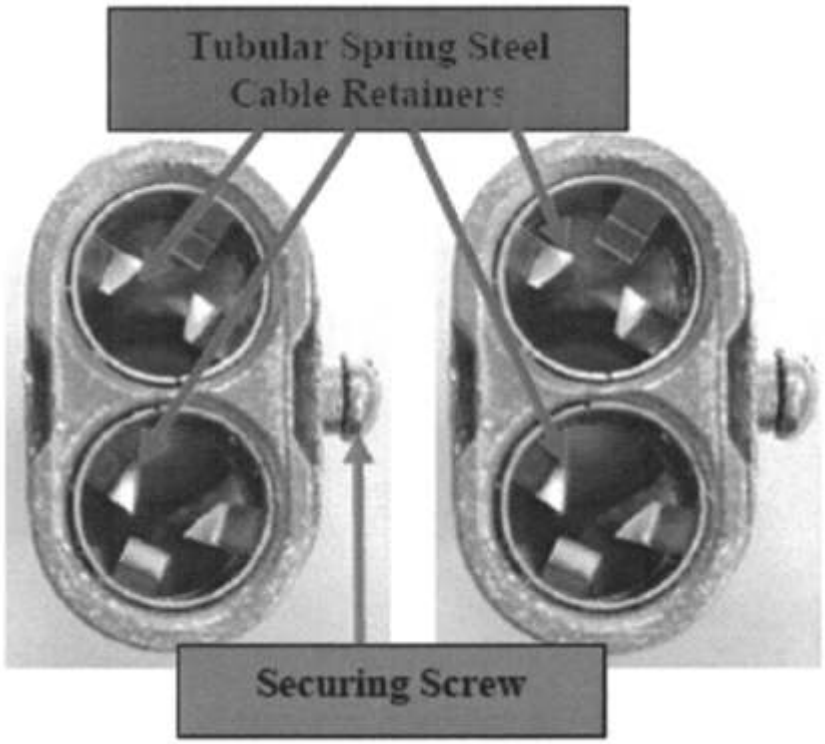
1. The SNAP^{2}IT® Duplex Connectors Embody the Invention

To establish a nexus, Arlington submitted two declarations and a claim chart from Mr. Gretz demonstrating that the commercial success of the SNAP^{2}IT® duplex connectors (A1074(¶4-5), A1078-1084) is directly related to the patented features because the products embody each limitation of claim 1. A1074(¶6); A491-95; A1085-87(¶7).

Specifically, Mr. Gretz demonstrated the correspondence between the SNAP^{2}IT® duplex connectors and claim 1 of the '831 Patent, comparing the commercial product, limitation-by-limitation, with annotated pictures of the commercial product. A491-95[8]. A couple of representative pictures and annotations from the claim chart are depicted below:

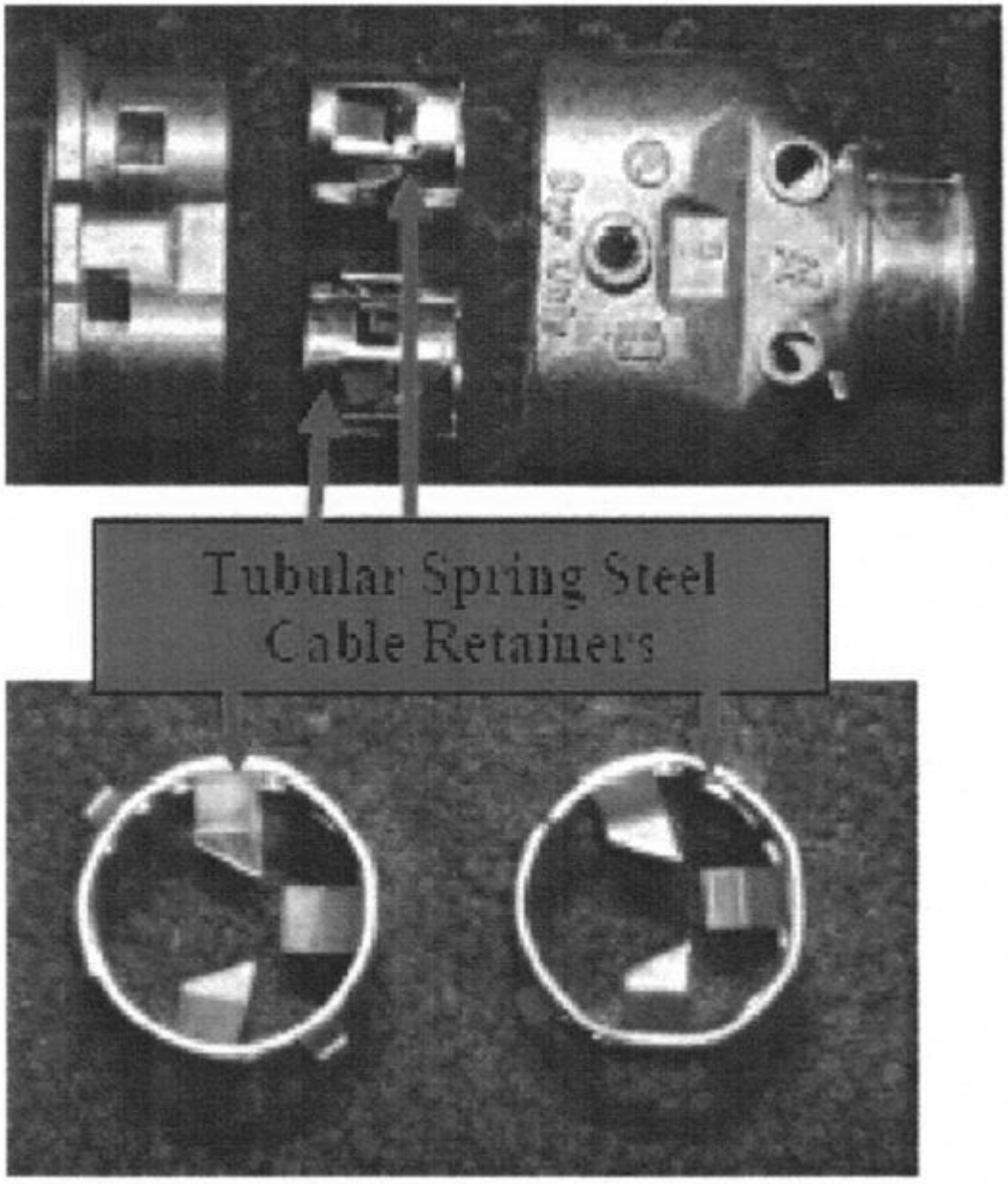
[8] The Gretz Declaration and its referenced attached claim chart were provided to the Examiner in the reexamination proceeding, but the chart was inadvertently omitted by Arlington in its Evidence Appendix, though it was referred to in both of Arlington's briefs. A328, A126 n.26. Bridgeport provided a copy of the chart to the Board with its responsive brief. A432n5; A358(¶11).

Arlington's cable retainers are made from spring steel and are shaped like a tube. The tubular spring steel cable retainers are secured in the openings in the inbound end by the screw and clamping action of the two components of the housing.

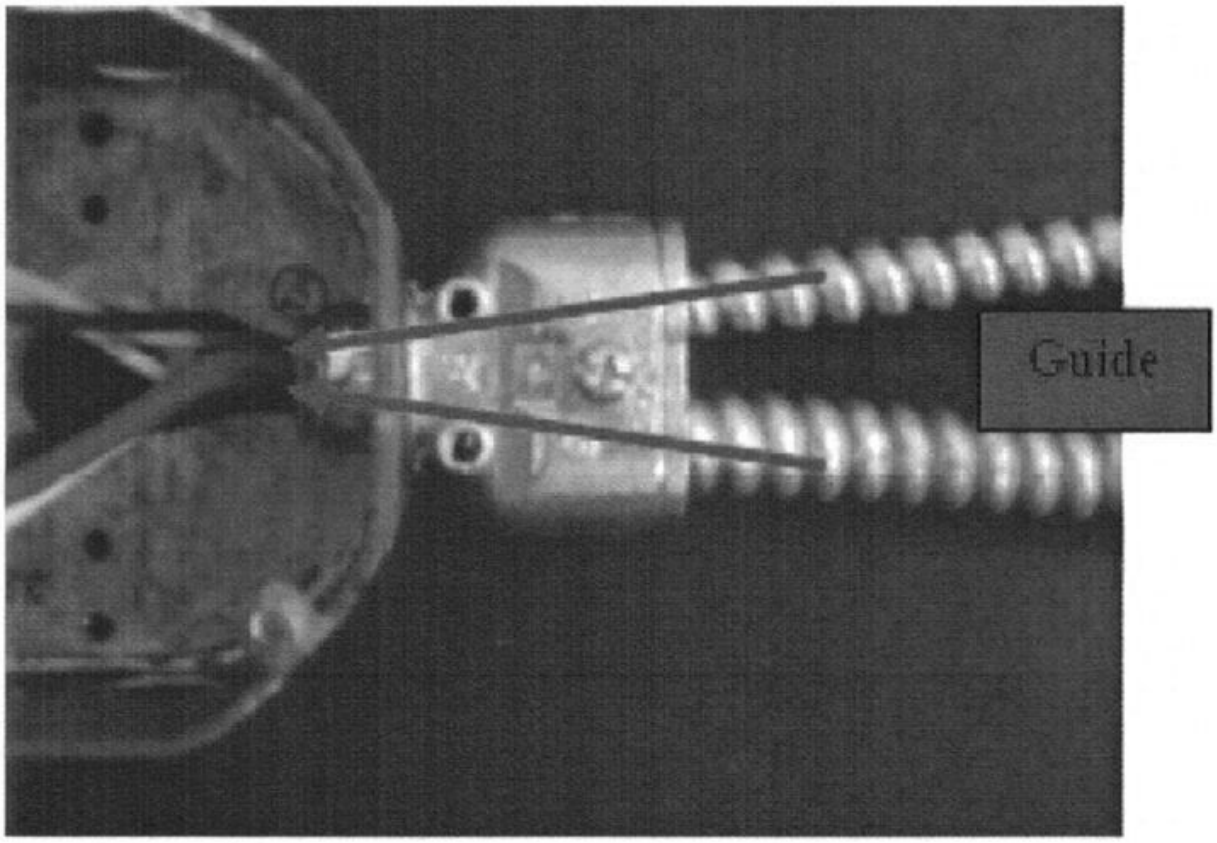


A492(illustrating part of element 1(c) where the spring steel cable retainers are secured during manufacturing in the openings of the inbound end by use of a set screw).

Mr. Gretz's annotations and explanations of additional limitations in element 1(c), are set forth below, illustrating the claimed retainers' tangs, which restrict removal of separate cables from the inbound end, engage the ridges of the cable as they are installed from the inbound end, and guide and advance the cables toward the outbound end. A493.


Tubular Spring Steel
Cable Retainers

The cables pass through the retainers and the tangs engage the ridges on the cable as the cable is fed in from the inbound end. As the cables are fed through the retainers, they are advanced down the inbound end and guided to the hole in the outbound end.



Id.

The photos in the Gretz claim chart also demonstrate that the SNAP^{2}IT® duplex connectors also correspond to the figures in the ’831 Patent. A75, A78. There can be no doubt that the claim chart (A491-95), combined with Mr. Gretz’s declaration and supplemental declaration (A1080(¶5); A1074(¶6)), made a prima facie showing that the SNAP^{2}IT® duplex connectors are commensurate with the

claim limitations of claim 1 of the ’831 Patent. *See Demaco Corp. v. F. Von Langsdorff Licensing Ltd.*, 851 F.2d 1387, 1392(Fed. Cir. 1988).

The Board’s opinion, however, is *silent* as to the submitted claim chart. Thus, the Board simply failed to consider the correspondence of the commercial embodiments to the claim. *See Gechter v. Davidson*, 116 F.3d 1454, 1460 (Fed. Cir. 1997) (“the Board is required to set forth in its opinions specific findings of fact...adequate to form a basis for [this Court’s] review”). The Board’s failure to consider Arlington’s prima facie showing that the commercially successful SNAP^{2}IT® duplex connectors are the invention disclosed and claimed in the ’831 Patent by itself warrants reversing the Board’s decision. *Demaco*, 851 F.2d at 1392-1394.

2. Customer Declarations Further Established the Nexus to the Patented Features

The Board also erred when it rejected three separate “customer” declarations[9] (A1119-20; A1122-24; A1126-1128) and a published trade journal article in *Capital Now* by Steve Grieco (“Grieco article”)(A1067-1071), all of

[9] The “customers” consisted of (1) an electrician and owner of a construction company with 30 years industry experience, A1119; (2) an electrician and owner of another electrical construction company with 15 years experience, A1122; and (3) an electrical inspector and sales representative for an electrical supplier with 20 years of industry experience, A1126.

which consistently praised the features and benefits of Arlington's patented SNAP2IT® duplex connectors.

In the declarations, the electricians and electrical inspector explained that they buy the SNAP^{2}IT® duplex connectors for a premium price over the conventional duplex connectors because the design and features of the product eliminate the need for tools during installation, resulting in significant reduction of installation time and labor costs for construction projects. (A1120(¶¶4-5), A1123(¶¶4-5); A1127(¶4)) (each referring to the 3838ST connector model for which Mr. Gretz provided a claim chart). Despite their obvious relevance, the Board rejected the declarations because they did not "provide a thorough, element-by-element analysis of the claimed duplex connector." A37. There is no requirement, however, for industry praise to be submitted in the form of an element-by-element analysis. *See Power-One, Inc. v. Artesyn Techs., Inc.*, 599 F.3d 1343, 1352 (Fed. Cir. 2010) ("industry praise" is admissible if it "specifically relate[s] to features of the patented invention"). Moreover, the Board did not need an element-by-element analysis because the electricians' praise clearly related to the patented features of the '831 Patented invention. A few sentences from the declarations plainly demonstrate the nexus between the industry praise and the patented invention:

> The duplex SNAP^{2}IT® connectors provide a product which offers substantial labor saving benefit...The product does not

> require the use of a tool in order to ***install the two cables into the leading end*** [element 1(c) restricting removal] and allows the ***installation of the connector into the box using a simple snap fitting*** [element 1(d) spring steel adapter]. As tools are not necessary [both elements 1(c) and(d)], use of the product results in an easier installation in hard to reach places and a quicker installation [Field of the Invention]....Further the ***design facilitates the insertion and passage of the armored cable in the lead end*** [element 1(c) guiding and advancing]. ***Customers purchase the duplex SNAP^{2}IT® connectors, and pay a premium over conventional duplex connectors, to obtain these features***. [Nexus]

See A1127(¶4) (emphasis and claim elements added in brackets).

The Grieco article similarly praised the SNAP^{2}IT® products' ability to snap the cables in without tools, with "no set screws, or lock nuts to adjust," while displaying several photos of Arlington's SNAP^{2}IT® duplex connectors being installed at a construction site. A1070. The declarations and Grieco article, combined with Mr. Gretz's declarations and claim chart providing the element-by-element analysis (A491-95), clearly established a prima facie showing of nexus between the commercial success and the features of the patented invention. *Demaco*, 851 F.2d at 1392. "Had the Board considered or reviewed the declarations in any meaningful way, it might have arrived at a different conclusion than it did." *In re Sullivan*, 498 F.3d at 1353. At a minimum, the Board must explain why this evidence does not suffice to undermine any suggestion that the invention was obvious.

The Board's rejection of this highly relevant objective evidence of non-obviousness highlights a fundamental misunderstanding of claim 1. One skilled in the art would clearly recognize that the retention by the retainers' tangs recited in element 1(c) and the tangs of the spring steel adaptor recited in element 1(d) necessarily and inherently result in the tool-less installation of duplex cables enjoyed by Arlington's customers. A81(6:14-18; 6:30-35); A82(7:2-15); A79(1:13-16) ("The present invention relates to...two-wire cable terminations that *snap into place* and include *snap-on cable retainers*, neither of which requires twisting for locking.") (emphasis added). Arlington markets its patented invention as the *double-snap feature* of the products (i.e., SNAP^{2}IT®), and that as a result of the patented features, installation is quick, safe and without the use of tools. In contrast, conventional duplex connectors (*e.g.*, Grindle and Arlington's 846A) require customers to use tools to tighten a set screw or a clamp to hold the two cables in the inbound end, and use a threaded locknut at the outbound end to connect to the junction box. A1085. Consequently, Arlington's customers pay a premium for the SNAP^{2}IT® duplex connectors over conventional connectors to obtain the patented features (A1120; A1123; A1127), which make installation quicker and easier, especially "in hard to reach places." A1123(¶5); A1070. The Board erred as a matter of law by failing to consider this relevant evidence of non-obviousness.

3. The SNAP^{2}IT® Products' Commercial Success Is Based On Patented Features, Not Unclaimed Features

The Board also rejected the sales data submitted by Arlington, concluding that Arlington's SNAP^{2}IT® duplex connectors consisted of three different models (3838AST, 3838ST, and the 4040AST) and that 96% of the sales were products that contained "an insulated throat"design. The Board concluded—with absolutely no evidence and contrary to the evidence of industry praise—that the insulated throat was an unclaimed feature that may have contributed to the sales of the products, rather than the patented features. A37-38. The Board's conclusion lacks substantial evidence. First, all three SNAP^{2}IT® models are coextensive with the claim limitations of claim 1 of the '831 Patent. A1074(¶6 citing the chart). The 4040AST simply accepts larger sized cables than the 3838AST and 3838ST models, and that the 3838ST does not have the insulated throat. A1078. Second, the "insulated throat" is a small piece of plastic that Mr. Gretz explained is sold with both the patented SNAP^{2}IT® duplex connectors and *the conventional duplex connectors.* *Compare* A1078(¶2) *with* A1080(¶4). The sales evidence demonstrates that customers purchased the patented SNAP^{2}IT® duplex connectors at a premium price despite the fact that Arlington sells *conventional duplex*

connectors that also had insulated throats, on average, for 75% less per unit.[10] Thus, Arlington's prima facie showing of nexus between the patented products and their commercial success cannot be rebutted by the Board's baseless argument regarding the insulator. *See Brown & Williamson Tobacco Corp. v. Philip Morris Inc.*, 229 F.3d 1120, 1130 (Fed. Cir. 2000) ("The presumed nexus cannot be rebutted with mere argument; evidence must be put forth."). Moreover, Arlington was not required to "prove as part of its prima facie case that the commercial success of the patented invention is *not* due to factors other than the patented invention. It is sufficient to show that the commercial success was of the patented invention itself. A requirement for proof of the negative of all imaginable contributing factors would be unfairly burdensome, and contrary to the ordinary rules of evidence." *Demaco*, 851 F.2d at 1394.

4. Market Share Information Was Not Necessary Because Arlington and Bridgeport Were the Only Two Suppliers and Bridgeport Did Not Disclose Its Sales Information

The Board also rejected Arlington's showing of sales figures because it did provide information concerning "any change in market share required to show a

[10] The insulated throat is an inexpensive piece of plastic that sits at the end of the connector to provide protection to the conductors of cables. Many of Arlington's connectors (including the conventional duplex connectors) are sold in two configurations: with or without the insulated throat (e.g., 3838AST and 3838ST, and the 847 and 847A). A1080(¶4).

nexus." A38-39. But this Court has held that "[a]lthough sales figures coupled with market data provide stronger evidence of commercial success, sales figures alone are also evidence of commercial success." *See Tec Air Inc. v. Denso Mfg. Michigan Inc.*, 192 F.3d 1353, 1361 (Fed. Cir. 1999). That should especially be true here when market share information is not available and Arlington and Bridgeport are the only two competitors who sell these types of duplex connectors, A543(n1); s*ee also Arlington Indus., Inc. v. Bridgeport Fittings, Inc.*, 2011 WL 2927817, at *5 (preliminarily enjoining Bridgeport's duplex connectors, holding that "[a]s a result of the two-competitor market, each infringing sale by Bridgeport of its duplex connectors is likely a lost sale for Arlington.).[11] Because Arlington established significant sales in the relevant market and that SNAP^{2}IT® duplex connectors are claimed in the patent, "it is presumed that the commercial success is due to the patented invention." *J.T. Eaton & Co., Inc. v. Atl. Paste & Glue Co.*, 106 F.3d 1563, 1571 (Fed Cir. 1997).

B. Arlington's Evidence Established That Its Patented Products Satisfied a Long-Felt but Unresolved Need

The Board similarly erred in its rejection of Arlington's evidence of long-felt but unresolved need (A43). *See* Section III.A., *supra*. Arlington submitted

[11] The preliminary injunction dissolved upon the expiration of Arlington's United States Patent No. 5,266,050 (the "'050 Patent") on December 4, 2011.

declarations from a large number of individuals, including Mr. Gretz, an expert in the field, several customers, and multiple Arlington employees with vast amounts of experience in the field. A1074-75(¶7); A1085(¶6); A1120(¶4); A1123(¶6); A1088-91; A1131-32. Such evidence established that duplex cable installation that required tools to connect both the cable and the connector to the box was difficult and time intensive, making the installation of multiple connectors in construction projects time-consuming and expensive. A1123(¶4). There was a need for a connector that still safely installed and retained duplex cables inside the connector, and installed the connector to the junction box, without tools to reduce installation time and labor costs. The need for these more safe but labor saving connectors existed from at least 1918, and continued until 1999, when the '831 Patented duplex connector was invented. A1085(¶6). Tellingly, none of the references relied upon by the Board had solved this problem. And the Board's resort to the piecing together of the three separate references, which ranged from 10 to 80 years prior to the Arlington's invention, is an objective indicator of long-felt need. *See Leo*, 2013 WL 4054937, at *12 ("The length of the intervening time between the publication dates of the prior art and the claimed invention can also qualify as an objective indicator of nonobviousness.").

Bridgeport's Engineering Manager, Mr. Keily, acknowledged that Bridgeport's customers sent him emails requesting that Bridgeport make a product

just like Arlington's SNAP^{2}IT® duplex connectors, and that their customers were willing to pay a premium for duplex connectors that could be installed without tools:

> Q Well, didn't we just go through a bunch of emails and the like concerning your customers wanting you, Bridgeport, to make a cross product just like Arlington's 3838AST and 3838ST?
> Mr. Anderson: Object to the form of the question.
> A. There was [sic] emails to that effect. Yes.
>
> * * *
>
> Q Let me ask you this: Is Bridgeport's 3838ASP and SP interchangeable with Arlington's 38AST and ST?
> A I'm hesitating because Arlington changed the cable range on their connectors, so I don't know what they are as of today.
> Q Generally speaking.
> A Yes.
>
> * * *
>
> Q Is Bridgeport's 3838ASP and SP more expensive than the conventional connector – duplex connectors?
> A To my knowledge they are, yes.
> Q And is it – but customers still buy it nonetheless?
> A Buy the 3838?
> Q Buy the 3838SP and ASP?
> A Some do.
> Q **And they buy it because it has additional features over the conventional connectors?**
> **A They feel it does.**
> **Q And those connect – those features are being able to install a flexible metal cable in a junction box without the use of tools in a short period of time?**
> **A Yes.**

A1100(215:7-14); A1104-05(221:5-12; 222:10-223:1) (emphasis added).

Such testimonial evidence was bolstered by declarations by two of Arlington's customers, who are both experienced electricians, which stated that Bridgeport's 3838ASP and 3838SP "appear to be substantially similar if not identical to" (A1124(¶8); A1127-28(¶6)), and "have the same features" as Arlington's SNAP^{2}IT®. Accordingly, the Board erred when it set aside Arlington's evidence of long-felt need.

* * *

Accordingly, the Board's conclusion that Arlington did not present substantial objective evidence of non-obviousness is wrong as a matter of law and should be reversed.

CONCLUSION

For all of the foregoing reasons, Arlington respectfully requests that the Board's decision be reversed, and claims 1, 5, and 6 should be found valid.

August 26, 2013

Respectfully submitted,

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CERTIFICATE OF SERVICE

Pursuant to Federal Rules of Appellate Procedure 25(b) and (d), I hereby certify that on this 26th day of August, 2013, I electronically filed the foregoing document with the Clerk of the United States Court of Appeals for the Federal Circuit using the CM/ECF System and caused a true and correct copy to be sent via e-mail to:

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CERTIFICATE OF COMPLIANCE

I certify that the foregoing Corrected Principal and Response Brief of Plaintiff-Cross Appellant Arlington Industries, Inc. complies with the type-volume limitation of Federal Rule of Appellate Procedure 28.1(e)(2)(A)(i) and contains 13,807 words, excluding the parts of the brief exempted by Federal Rule of Appellate Procedure 32(a)(7)(B)(iii) and Federal Circuit Rule 32(b).

I further certify that this brief complies with the typeface requirements of Federal Rule of Appellate Procedure 32(a)(5) and the type style requirements of Federal Rule of Appellate Procedure 32(a)(6). The brief has been prepared in a proportionally spaced typeface using Microsoft Word in Times New Roman, 14 point.

Dated: August 26, 2013

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
95/000,196	01/26/2007	6521831	IE-831	3931

30010 7590 12/16/2011

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EXAMINER	
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ART UNIT	PAPER NUMBER
3993	

MAIL DATE	DELIVERY MODE
12/16/2011	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

BRIDGEPORT FITTINGS, INC.
Third Party Requestor, Respondent, Appellant

v.

ARLINGTON INDUSTRIES, INC.
Patent Owner, Respondent, Appellant

Appeal 2011-009135
Inter partes Reexamination Control 95/000,196
United States Patent 6,521,831 B1
Technology Center 3900

Before RICHARD TORCZON, SCOTT R. BOALICK, and
KEVIN F. TURNER, *Administrative Patent Judges*.

TURNER, *Administrative Patent Judge*.

DECISION ON APPEAL

Patent Owner Arlington Industries, Inc. (hereinafter "Patent Owner") appeals[1] under 35 U.S.C. §§ 134(b) and 315(a) the Examiner's decision to reject claims 1, 5, and 6, with claim 2 being cancelled[2] and claims 3 and 4 having been confirmed.[3] Third-Party Requester, Bridgeport Fittings, Inc., (hereinafter "Requester") cross-appeals under 35 U.S.C. §§ 134(c) and 315(b) from the Examiner's decision to not adopt various proposed rejections.[4] We have jurisdiction under 35 U.S.C. §§ 134 and 315 with respect to all matters, with the exception of Requester's cross-appeal relating to the Examiner's entry of exhibits submitted after the Action Closing Prosecution, as discussed below.

With respect to Patent Owner's Appeal, we AFFIRM the Examiner's rejections of claims 1, 5, and 6 with respect to Grounds B, T, and U.

With respect to Requester's Cross-Appeal, we AFFIRM the Examiner's decision to not adopt the proposed rejection of claims 3 and 4 under Grounds R, G, and H, respectively.

---

[1] *See* Amended Patent Owner's Appeal Brief filed November 3, 2010, hereinafter "PO App. Br.," at 1.

[2] In an Amendment, filed September 20, 2010, Patent Owner cancelled claim 2. (*See* PO App. Br. at 1.)

[3] *See* Right of Appeal Notice, mailed August 14, 2009, hereinafter "RAN;" *see also* Requester's Respondent Brief filed October 20, 2010, hereinafter "TPR Respondent Br."

[4] *See* Requester's Appeal Brief filed November 23, 2009, hereinafter "TPR App. Br.," at 2-3; *see also* Patent Owner's Amended Response Brief filed June 30, 2010, hereinafter "PO Response Br.;" Rebuttal Brief by Requester filed April 19,2011.

STATEMENT OF THE CASE

This proceeding arose from a request for *inter partes* reexamination filed by Arthur T. Fattibene on behalf of Bridgeport Fittings, Inc., Requester, on November 15, 2006, of United States Patent 6,521,831 B1 ("the '831 patent"), issued to Thomas J. Gretz on February 18, 2003, based on U.S. Application No. 09/941,341, filed August 29, 2001. The '831 patent claims priority as a continuation-in-part to U.S. Application No. 09/792,185, filed February 23, 2001, now U.S. Patent No. 6,355,884 ("the '884 patent"), which claims priority as a continuation-in-part to U.S. Application No. 09/373,427, filed August 13, 1999, now U.S. Patent No. 6,194,661 ("the '661 patent").

The '831 patent has been the subject of the following litigation:

Arlington Industries, Inc. v. Bridgeport Fittings, Inc., 632 F.3d 1246 (Fed. Cir. 2011);

Arlington Industries, Inc. v. Bridgeport Fittings, Inc., Civ. A. No. 3:06-cv-01105 (M.D. Pa.).

THE INVENTION

Patentee's invention relates to a duplex electrical connector **10** which connects two helically wound armored or metal clad electrical conductors to a junction box or an electrical panel. (Col. 2, ll. 19-22.) The connector comprises a housing **12** having a cylindrical outbound end **16** linked by an interior channel to a generally oval inbound end **14**. (Col. 3, l. 60 – col. 4, l. 7; *see* Fig. 1.) The cylindrical outbound end **16** consists of a tubular spring steel adapter **28** with outwardly extending tangs **31** to prevent removal of the adapter **28** from the junction box. (Col. 4, ll. 59-63.) The generally oval inbound end **14** consists of a pair of parallel openings **24**, **26** with tubular spring steel cable retainers **20**, **22** secured in each of the openings **24**, **26** for accepting the separate cables. (Col. 4, ll. 31-39.) The retainers **20**, **22** each include a set of inwardly extending tangs **110a**, **110b**, **110c** to receive and engage the separate cables inserted into the inbound end **14** which guide the separate cables toward the outbound end **16** while restricting the separate cables' removal from the inbound end **14**. (Col. 6, ll. 29-36; *see* Fig. 5.)

Exemplary claim 1 on appeal reads as follows:

> 1. A duplex electrical connector comprising:
> a) a housing having a cylindrical outbound end, a generally oval inbound end, and an interior channel linking said inbound and said outbound end;
> b) a pair of parallel openings in said inbound end;
> c) a tubular spring steel cable retainer secured in each of said openings in said inbound end for accepting separate cables, said retainers including a set of inwardly extending tangs to receive and engage said separate cables inserted from said inbound end and guide said separate cables toward said cylindrical outbound end in a manner that said separate cables are advanced to said outbound end, said inwardly extending tangs restricting removal of said separate cables by force applied on said separate cables from said inbound end; and
> d) a tubular spring steel adapter secured to said cylindrical outbound end of said housing, said adapter having outwardly extending tangs.

(PO App. Br. 32, Claims Appendix.)

The prior art references relied upon by the Examiner in rejecting the claims are:

Grindle	US 1,295,304	Feb. 25, 1919
Bonderson	US 2,084,961	June 22, 1937
Roeder et al.	US 2,744,769	May 8, 1956
Schnittker	US 4,885,429	Dec. 5, 1989

Patent Owner relied on several exhibits and declarations in rebuttal to the Examiner's rejections discussed below.

Additionally, the Requester relied upon the following prior art references in their non-adopted rejections:

Schneiderman	US 2,749,148	Jun. 5, 1956
O'Neil et al.	US 5,373,106	Dec. 13, 1994
Gretz '432	US 6,043,432	Mar. 28, 2000
Gretz '933	US 6,080,933	Jun. 27, 2000

Arlington Ind. Inc.'s Price Schedule (1987), hereinafter "Exhibit H."

Arlington Ind. Inc.'s Catalog no. 491 (1991), hereinafter "Exhibit I."

Arlington Ind. Inc.'s Snap-Tite Connectors (1996), hereinafter "Exhibit J."

The Magazine of Electrical Design, Construction & Maintenance, *Project Management: Fertile Ground For Growing Profits*, October 1998, hereinafter "EC&M (Oct. 1998). (*See* Exhibit K.)

The Magazine of Electrical Design, Construction & Maintenance, *Ten Tips for Proper Motor Selection*, September 1999, hereinafter "EC&M (Sept. 1999.)" (*See* Exhibit L.)

Requester relied on various exhibits and declarations in rebuttal to the Examiner's decision to not adopt Requester's proposed rejections discussed below.

The Examiner adopted and Patent Owner Appeals the Requester's rejections as follows:

- Grounds B, T, and U:
    - Claims 1, 5, and 6 rejected under 35 U.S.C. § 103(a) as obvious over Grindle, Schnittker, and Roeder.
- Grounds E, V, and W:
    - Claims 1, 5, and 6 rejected under 35 U.S.C. § 103(a) as obvious over Bondeson, Roeder, and Schnittker.
- Grounds F, X and Y:

- Claims 1, 5, and 6 rejected under 35 U.S.C. § 103(a) as obvious over Overbagh, Roeder, and Schnittker.

- Ground S:
  - Claim 1 rejected under 35 U.S.C. § 103(a) as obvious over Arlington Ind. Inc.'s Catalog no. 491.

The Examiner refused to adopt, and Requester Cross-Appeals the non-adoption of, Requester's proposed rejections as follows:

- Grounds A and K:
  - Claims 1 and 5 rejected under 35 U.S.C. § 103(a) as obvious over Arlington Ind. Inc.'s Snap-Tite Connectors and Schnittker.
- Ground C:
  - Claim 1 rejected under 35 U.S.C. § 103(a) as obvious over Arlington Ind. Inc.'s Catalog no. 491 and Gretz.
- Ground D:
  - Claim 1 rejected under 35 U.S.C. § 103(a) as obvious over Arlington Ind. Inc.'s Catalog no. 491 and EC&M (Oct. 1998).
- Ground O:
  - Claim 1 rejected under 35 U.S.C. § 103(a) as obvious over Arlington Ind. Inc.'s Price Schedule, Gretz, and O'Neil.
- Ground P:
  - Claim 1 rejected under 35 U.S.C. § 103(a) as obvious over Schneiderman, Gretz '933, and O'Neil.

- Ground R:
    - Claim 3 rejected under 35 U.S.C. § 103(a) as obvious over EC&M (Sept. 1999), Gretz '933, and Schneiderman.
- Grounds G, I, and L:
    - Claims 4-6 rejected under 35 U.S.C. § 103(a) as obvious over Arlington Ind. Inc.'s Snap-Tite Connectors and EC&M (Oct. 1998).
- Ground H:
    - Claim 4 rejected under 35 U.S.C. § 103(a) as obvious over Arlington Ind. Inc.'s Snap-Tite Connectors and Gretz '432.
- Ground J:
    - Claim 5 rejected under 35 U.S.C. § 103(a) as obvious over Arlington Ind. Inc.'s Snap-Tite Connectors and Gretz '432
- Grounds M and N:
    - Claims 1 and 4-6 rejected under 35 U.S.C. § 103(a) as obvious over Arlington Ind. Inc.'s Snap-Tite Connectors and Gretz '933.

ISSUES[5]

Patent Owner Appeal

Does the combination of Grindle, Schnittker, and Roeder disclose all the limitations of independent claim 1, and its dependent claims 5 and 6 under 35 U.S.C. § 103(a)?

Did the Examiner err in concluding that the combination of Grindle, Schnittker, and Roeder makes obvious the subject matter of claims 1, 5, and 6 in light of Patent Owner's evidence of secondary considerations showing nonobviousness?

Requester Cross-Appeal

Did the Examiner err in determining that there is sufficient continuity of disclosure for the subject matter of claims 1, 4 and 5 such that these claims are entitled to the filing date of the originally filed '661 grandparent patent?

Did the Examiner err in not adopting the rejection of claims 3 and 4 under Grounds G, H, and R proposed by Requester?

Is it within the Board's purview to decide whether the Examiner erred in entering the declarations of Ken Stella and Robert Stella after the Action Closing Prosecution?

[5] We have considered in this decision only those arguments that the Patent Owner and the Requester actually raised in the Briefs. Arguments which the Patent Owner or the Requester could have made but chose not to make in the Briefs are deemed to be waived. *See 37* C.F.R. § 41.67(c)(1)(vii).

FINDINGS OF FACT

The record supports the following findings of fact (FF) by a preponderance of the evidence.

District Court's Memorandum and Order on Claim Construction

Ci1. The United States District Court for the Middle District of Pennsylvania construed "said retainers including a set of inwardly extending tangs to receive and engage said separate cables inserted from said inbound end and guide said separate cables toward said cylindrical outbound end in a manner that said separate cables are advanced to said outbound end" as recited by claim 1 to mean "[m]ore than one inwardly extending tang positioned in the retainers to guide or permit the forward movement of the cables toward the outbound end." (*See* Memorandum and Order on Claim Construction, Civ. A. No. 3:CV -06-1105 at 34 (Dec 4, 2007).)

Ci2. The United States District Court for the Middle District of Pennsylvania construed the limitation of claim 1 "a pair of parallel openings in said inbound end" to mean "a pair of parallel opening that have depth and are parallel for at least the length of the cable retainers." (*See* Memorandum and Order on Claim Construction, Civ. A. No. 3:CV -06-1105 at 33 (Dec 4, 2007).)

'661 Patent

Gp1. The '661 patent discloses that "[t]he present invention provides a duplex connector comprising a housing and an insert in the housing that

provides two inbound end apertures that conduct two armored cables to and through a single outbound end aperture." (Col. 1, ll. 39-42.)

Gp2. The "Field of the Invention" portion of the '661 patent discloses that "[t]he present invention relates to cable terminations and more particularly to duplex or two-wire cable terminations that snap into place and include snap-on cable retainers, neither of which requires twisting for locking." (Col. 1, ll. 4-7.)

'831 Patent

Sp1. The '831 patent describes that spring steel cable retainers may be secured by tangs, set screws, or annular ridges. (Col. 5, ll. 1-12.)

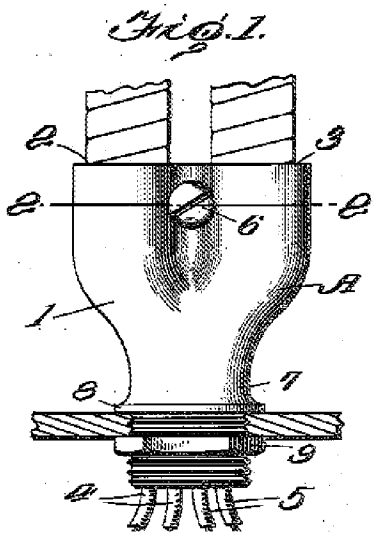
Sp2. The '831 patent describes that housing **12** includes shoulder portions **36** whose interior surfaces **38** are smooth to guide cables inserted through inbound end **14** through internal volume **40** of the housing to the cylindrical outbound end **16**. (Col. 4, ll. 8-14.)

Sp3. The '831 patent describes that the inbound end of the duplex housing can be modified to accept the spring steel cable retainers without an insert. (Col. 2, ll. 42-49.)

Grindle

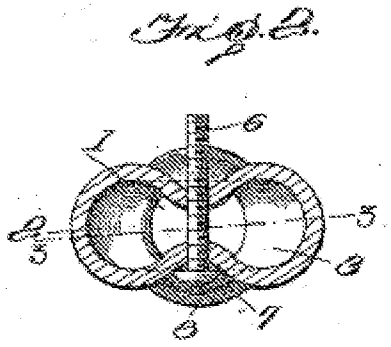
G1. Grindle is directed to a one piece multiple wire connector composed of metal, which allows more than one armored wire to connect to a junction box through one connector which saves time and materials during installation. (P. 1, ll. 14-37 and 97-98.)

G2. Figure 1 is depicted below:



(Figure 1 depicts a hollow body portion **1** with parallel inlets **2**, **3** adapted to receive armor clad electrical wires **4**, **5** which terminate at the body portion's opposite end **7** in a single circular outlet.)

G3. Figure 2 is depicted below:



(Figure 2 is a transverse vertical section of Grindle's one piece multiple wire connector which depicts inlets **2**, **3** which are adapted to receive electrical wires **4**, **5** covered with armor.)

G4. Grindle describes that inlets **2**, **3** are sized to receive armored wire and opposing wall portions of the inlets are brought

together to completely surround the armor. (P. 1, ll. 41-47; *see* Fig. 2.)

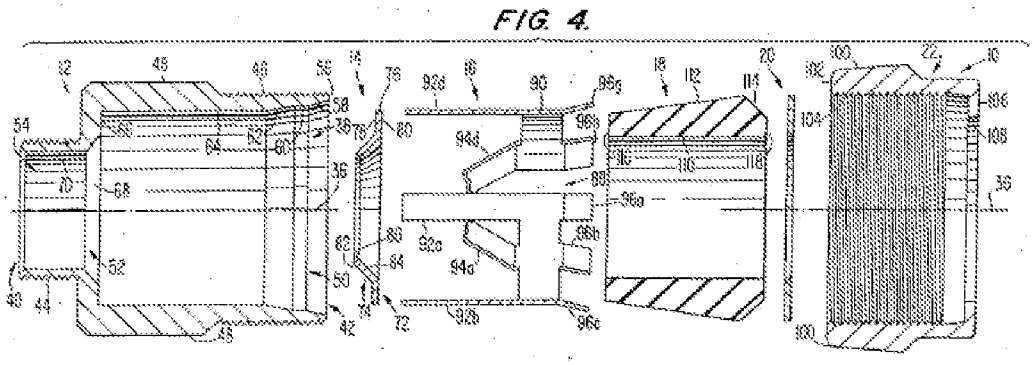
G5. Grindle describes that screw **6** is used to securely hold the armor cables at the inlets. (P. 1, ll. 44-47.)

G6. Grindle describes that its connector is secured to a junction box by a lock-nut on the screw-threaded outbound end. (P. 1, ll. 54-59.)

Schnittker

S1. Schnittker is directed to a metal clad cable connector capable of securely coupling a metal clad cable to a junction box while providing a grounding mechanism. (Col. 1, ll. 63-66.)

S2. Figure 4 is depicted below:



(Figure 4 is a longitudinal view of the parts making up Schnittker's metal clad cable connector.)

S3. Schnittker describes that a split grounding ring **16** is formed of metal and comprises an annular central portion **90** and *inter alia* four angled leading tines **94a-d** bent inwardly about a line slightly spaced from the leading edge of the central portion. (Col. 5, ll. 15-19 and 40-66.)

S4. Schnittker describes that the angled leading tines of grounding ring **16** engage the outer surface **28** of metal clad cable **24** to create a force which resists a rearward force that could pull the cable out of the connector due to the engagement of grommet **18** with the grounding ring **16** and washer **20**. (Col. 7, ll. 48-53.)

S5. Schnittker describes that external threads **44** on first opening **40** couple connector **10** to an electrical junction box. (Col. 4, ll. 10-16; *see* Fig 4.)

S6. Schnittker describes that armor stop **14** is formed from a metal such as aluminum and is adapted to engage the distal end **27** of metal clad cable **24** to aid in grounding the cable and also limit its axial and radial movement relative to the connector. (Col. 4, ll. 40-51.)

Roeder

R1. Roeder is directed to a bushing means for attaching insulated wires to junctions boxes. Specifically, Roeder describes a tubular connector having a peripheral member to receive a metal fastener with outturned lugs which retract as the tubular member is projected through a hole in a junction box and then snap into place behind the wall to hold the tubular member in place on the box. (Col. 1, ll. 15-34.)

R2. Figure 1 is depicted below:

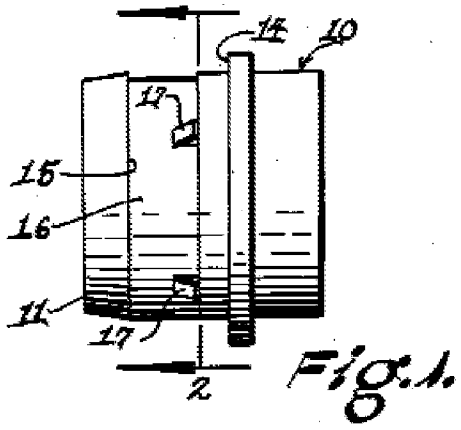


Fig. 1.

(Figure 1 depicts Roeder's bushing means.)

R3. Figure 3 is depicted below:

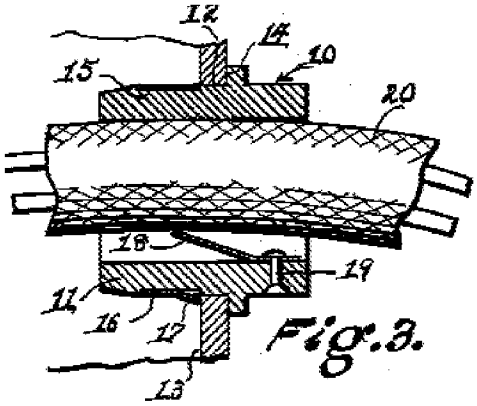


Fig. 3.

(Figure 3 depicts Roeder's tubular connector member **10** which engages wire **20** when inserted into or projected through using gripper finger **18** to prevent any rearward motion of the wire. (Col. 2, ll. 59-70.)

R4. Roeder describes that metal fastener **16** includes lugs **17** which bend outwardly to project angularly from the exterior circumference of the ring to secure the connector in place. (Col. 2, ll. 19-24 and 36-43; *see* Fig. 1.)

R5. Roeder describes that the claimed electrical connector eliminates the need for screws to secure the insulated wire. (Col. 3, ll. 10-14.)

R6. Roeder describes that its connectors "temporarily or removably" fasten in place, but when it is necessary to remove the connector the fastener ring **16** must be pryed out of the channel to release the connector **10**. (Col. 2, ll. 42-47.)

PRINCIPLES OF LAW

Claim Construction

We must be careful not to read a particular embodiment appearing in the written description into the claim if the claim language is broader than the embodiment. *See Superguide Corp. v. DirecTV Enter.*, Inc., 358 F.3d 870, 875 (Fed. Cir. 2004) ("Though understanding the claim language may be aided by explanations contained in the written description, it is important not to import into a claim limitations that are not part of the claim. For example, a particular embodiment appearing in the written description may not be read into a claim when the claim language is broader than the embodiment"). The challenge is to interpret claims in view of the specification without unnecessarily importing limitations from the specification into the claims. *See E-Pass Techs., Inc. v. 3Com Corp.*, 343 F.3d 1364, 1369 (Fed. Cir. 2003).

Obviousness

"Section 103 forbids issuance of a patent when 'the differences between the subject matter sought to be patented and the prior art are such

that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.'" *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art, (2) any differences between the claimed subject matter and the prior art, (3) the level of skill in the art, and (4) where in evidence, so-called secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966). *See also KSR*, 550 U.S. at 407 ("While the sequence of these questions might be reordered in any particular case, the [*Graham*] factors continue to define the inquiry that controls.")

In *KSR*, the Supreme Court held that "[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." *KSR*, 550 U.S. at 407. The Court explained:

> When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.

Id. at 417.

The operative question in this "functional approach" is thus "whether the improvement is more than the predictable use of prior art elements

according to their established functions." *Id.* In rejecting claims under 35 U.S.C. § 103(a), the examiner bears the initial burden of establishing a prima facie case of obviousness. *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992). *See also In re Piasecki*, 745 F.2d 1468, 1472 (Fed. Cir. 1984). Only if this initial burden is met does the burden of coming forward with evidence or argument shift to the Appellants. *Oetiker,* 977 F.2d at 1445. *See also Piasecki*, 745 F.2d at 1472. Obviousness is then determined on the basis of the evidence as a whole and the relative persuasiveness of the arguments. *See Oetiker*, 977 F.2d at 1445; *Piasecki*, 745 F.2d at 1472.

Secondary Considerations

In our determination of obviousness under 35 U.S.C. § 103, we also carefully weigh, in addition to the evidence relied upon by the Examiner, the objective evidence of nonobviousness provided by Appellant. To be given substantial weight in the determination of obviousness or nonobviousness, evidence of secondary considerations must be relevant to the subject matter as claimed, and therefore the examiner must determine whether there is a nexus between the merits of the claimed invention and the evidence of secondary considerations. *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 305 n.42 (Fed. Cir. 1985). In particular, an applicant asserting secondary considerations to support its contention of nonobviousness bears the burden of proof of establishing a nexus between the claimed invention and evidence of secondary considerations. For example, in the case of evidence of commercial success, the Federal Circuit

has acknowledged that the applicant bears the burden of establishing a nexus, stating:

> In the ex parte process of examining a patent application, however, the PTO lacks the means or resources to gather evidence which supports or refutes the applicant's assertion that the sale constitutes commercial success. *C.f. Ex parte Remark*, 15 USPQ2d 1498, 1503 (Bd. Pat. App. & Int. 1990)(evidentiary routine of shifting burdens in civil proceedings inappropriate in ex parte prosecution proceedings because examiner has no available means for adducing evidence). Consequently, the PTO must rely upon the applicant to provide hard evidence of commercial success.

In re Huang, 100 F.3d 135, 139-40 (Fed. Cir. 1996). *See also In re GPAC*, 57 F.3d 1573, 1580 (Fed. Cir. 1995); *In re Paulsen*, 30 F.3d 1475, 1482 (Fed. Cir. 1994) (Evidence of commercial success of articles not covered by the claims subject to the obviousness rejection was not probative of nonobviousness).

Objective evidence of nonobviousness, including commercial success, must be commensurate in scope with the claims. *In re Tiffin*, 448 F.2d 791, 791 (CCPA 1971) (evidence showing commercial success of thermoplastic foam "cups" used in vending machines was not commensurate in scope with claims directed to thermoplastic foam "containers" broadly). In order to be commensurate in scope with the claims, the commercial success must be due to claimed features, and not due to unclaimed features. *Joy Techs. Inc. v. Manbeck*, 751 F. Supp. 225, 229 (D.D.C. 1990), *aff'd*, 959 F.2d 226, 228 (Fed. Cir. 1992) (Features responsible for commercial success were only recited in allowed dependent claims, and therefore the evidence of commercial success was not commensurate in scope with the broad claims at

issue.) "[W]e have consistently held that a patent applicant 'need not sell every conceivable embodiment of the claims in order to rely upon evidence of commercial success.' *In re DBC*, 545 F.3d 1373, 1384 (Fed.Cir.2008) (quoting *Applied Materials, Inc. v. Adv. Semiconductor Materials Am., Inc.*, 98 F.3d 1563, 1570 (Fed.Cir.1996)). Commercial success evidence should be considered 'so long as what was sold was within the scope of the claims.' *Id.*" *In re Glatt Air Techniques, Inc.*, 630 F.3d 1026, 1030 (Fed. Cir. 2011); *see also In re Kao*, 639 F.3d 1057, 1068 (Fed. Cir. 2011).

An inventor's opinion as to the purchaser's reason for buying the product is insufficient to demonstrate a nexus between the sales and the claimed invention. *In re Huang*, 100 F.3d at140. Further, gross sales figures do not show commercial success absent evidence as to market share, *Cable Elec. Prods., Inc. v. Genmark, Inc.*, 770 F.2d 1015 1026-27 (Fed. Cir. 1985), or as to the time period during which the product was sold, or as to what sales would normally be expected in the market, *Ex parte Standish*, 10 USPQ2d 1454, 1458 (BPAI 1988).

Establishing long-felt need requires objective evidence that an art-recognized problem existed in the art for a long period of time without solution. In particular, the evidence must show that the need was a persistent one that was recognized by those of ordinary skill in the art. *In re Gershon*, 372 F.2d 535, 539 (CCPA 1967). The relevance of long-felt need and the failure of others to the issue of obviousness depend on several factors. First, the need must have been a persistent need that was recognized by those of ordinary skill in the art. *Orthopedic Equip. Co.* 707 F.2d at 1382; *see also In re Gershon*, 372 F.2d at 539. Second, the long-felt need

must not have been satisfied by another before the invention by applicant. *Newell Cos. v. Kenney Mfg. Co.*, 864 F.2d 757, 768 (Fed. Cir. 1988) ("[O]nce another supplied the key element, there was no long-felt need or, indeed, a problem to be solved.") Third, the invention must in fact satisfy the long-felt need. *In re Cavanagh*, 436 F.2d 491, 496 (CCPA 1971). "[L]ong-felt need is analyzed as of the date of an articulated identified problem and evidence of efforts to solve that problem." *Texas Instruments, Inc. v. ITC*, 988 F.2d 1165, 1178 (Fed. Cir. 1993).

As secondary evidence, more than the mere allegation of copying is needed to make a showing of nexus and nonobviousness. "[M]ore than the mere fact of copying by an accused infringer is needed to make that action significant to a determination of the obviousness issue." *Cable Elec. Prods., Inc.* 770 F.2d at 1028. "Rather than supporting a conclusion of obviousness, copying could have occurred out of a general lack of concern for patent property, in which case it weighs neither for nor against the nonobviousness of a specific patent." *Id.*

Evidence pertaining to secondary considerations must be taken into account whenever present; however, it does not necessarily control the obviousness conclusion. *See, e.g., Pfizer, Inc. v. Apotex, Inc.*, 480 F.3d 1348, 1372 (Fed. Cir. 2007) ("the record establish[ed] such a strong case of obviousness" that allegedly unexpectedly superior results were ultimately insufficient to overcome obviousness conclusion); *Leapfrog Enters. Inc. v. Fisher-Price Inc.*, 485 F.3d 1157, 1162 (Fed. Cir. 2007)("given the strength of the prima facie obviousness showing, the evidence on secondary

considerations was inadequate to overcome a final conclusion" of obviousness); and *Newell Cos., Inc*, 864 F.2d at 768.

ANALYSIS

PATENT OWNER APPEAL

GROUNDS B, T, and U

Claims 1, 5, and 6 rejected under 35 U.S.C. § 103(a) as obvious over Grindle, Schnittker, and Roeder.

Independent claim 1

Patent Owner generally argues that the combination of Grindle, Schnittker, and Roeder fails to disclose the limitation of claim 1 which recites:

> a tubular spring steel cable retainer secured in each of said openings in said inbound end for accepting separate cables, said retainers including a set of inwardly extending tangs to receive and engage said separate cables inserted from said inbound end and guide said separate cables toward said cylindrical outbound end in a manner that said separate cables are advanced to said outbound end, said inwardly extending tangs restricting removal of said separate cables by force applied on said separate cables from said inbound end.

(PO App. Br. 3.)

Patent Owner's first argument with respect to this limitation is that that the grounding ring of Schnittker is not a cable retainer as presently recited by claim 1, and as such would provide no retaining function. (PO App. Br. 3.) Rather, Patent Owner contends that Schnittker's cable retainer includes a rubber grommet and gland nut for compressing the grommet to

enable the grommet to perform the cable retaining function. (PO App. Br. 3.) Thus, Patent Owner argues that the combination of Grindle, Schnittker, and Roeder fails to disclose "a tubular spring steel cable retainer secured in each of said openings in said inbound end for accepting separate cables." (PO App. Br. 4.) We cannot agree.

Instead, we find that the combination of Grindle, Schnittker, and Roeder discloses the claimed cable retainer. In making this determination, we find that Grindle discloses a duplex electrical connector including a housing having a cylindrical outbound end, a generally oval inbound end, and an interior channel linking the inbound and outbound ends. (RAN 14; *See also* FF G1, G2.) While Grindle's duplex electrical connector includes a pair of parallel openings in its inbound end **2**, **3**, Grindle fails to disclose that it retains the metal clad cables inserted therein using a tubular spring steel cable retainer. (RAN 14; *See also* FF G2.) To address this limitation, the Examiner relies on the metal clad cable retainer of Schnittker. (FF S1.) Specifically, Schnittker discloses a grounding ring which engages the outer surface of a metal clad cable to create a force which resists rearward forces which would pull the cable out of the connector, and thus capable of performing the claimed retaining function of claim 1. (FF S4.)

While we agree with Patent Owner that Schnittker's grounding ring would not necessarily be secured to the openings of Grindle's inbound ends in the same manner as certain embodiments disclosed in '831 patent's Specification, neither Patent Owner's Specification (FF Sp1) nor the claim excludes Schnittker's grounding ring from being secured to the inbound end of the housing using a rubber grommet and gland nut. (FF S4.)

Accordingly, since the combination adopted by the Examiner discloses that Schnittker's metal grounding ring is secured to each of the openings in Grindle's inbound end, we find that the combination performs the intended function of retaining and accepting separate metal clad cables. Therefore, we find Patent Owner's arguments to be unpersuasive.

Additionally, Patent Owner argues that the modified duplex connector of Grindle, Schnittker, and Roeder would fail to guide the separate cables toward the outbound end in a manner that the separate cables are advanced to the outbound end. (PO App. Br. 5.) To support this argument, Patent Owner asserts that "Grindle's connector modified with Schnittker's ring would not guide a cable to the outbound end because . . . the ring would spin within the bore." (PO App. Br. 5-6.) Additionally, Patent Owner contends that even if the grounding ring was locked, Schnittker's angled tines "would guide each cable straight down the bore and not push it towards the outbound bore, which is offset from the inbound bores." (PO App. Br. 6.)

We are not persuaded by Patent Owner's arguments and as discussed *supra,* find that independent claim 1 does not require any specific mechanism for securing the "tubular spring steel cable retainer" of Schnittker (FF S3, S4) to each of the openings in the inbound end of Grindle's housing (FF G1), nor does the Specification provide evidence indicating a particular type of mechanism must be read into the claim. As such, we find when secured, Schnittker's grounding ring and its set of inwardly extending tangs (FF S3) would not "spin within the bore" of Grindle, and thus be capable of accepting separate cables and guiding them

from the inbound ends to outbound end of Grindle's modified duplex electrical connector. (FF G1.)

While Patent Owner's contention that Schnittker's set of inwardly leading tines would guide a metal clad cable straight down the bore may be correct, the rejection of this feature is based on the combination of Grindle and Schnittker. As such, we cannot ignore the fact that the shoulder component of Grindle's multiple wire connector, which merges two parallel cables inlets into a single, offset outbound end, would also aid in accepting the separate cables from the inbound ends and guiding the cables to the outbound end in a manner similar to that of the presently claimed duplex connector. (FF G3.) Specifically, the '831 patent's Specification describes that the shoulder portions of the duplex connector's housing guide the cables inserted through the housing from the inbound ends to the outbound end. (FF Sp2.)

Moreover, we are not persuaded by Patent Owner's assertion that the four tangs of Schnittker's grounding ring would counteract each other resulting in an inability to guide and advance the cables inserted into each of Grindle's inbound ends toward the cylindrical outbound. (PO App. Br. 8-9.) Instead, we find that the inwardly extending tines of Schnittker's grounding ring (FF S3) incorporated into Grindle's duplex connector would function to receive, engage, and guide or permit forward movement of the metal clad cables from the inbound end through the grounding ring and towards an outbound end, in a manner commensurate with the language of independent claim 1. (FF S2; *see also* Ci1.)

Similarly, contrary to Patent Owner's argument that the inwardly angled leading tines of Schnittker cannot possibly guide separate cables to an outbound, offset bore due to the complex geometry of duplex connectors (PO App. Br. 10), we find that Grindle's duplex connector as modified by Schnittker's grounding ring would benefit from the same geometry which, in part, guides the cables described in the '831 patent, and as such, be capable of accepting and guiding the separate cables as presently claimed.

Still, Patent Owner argues that the orientation of the inwardly extending tangs of the claimed cable retainers are critical in guiding the cables towards the outbound end (PO App. Br. 9), however we find that independent claim 1 makes no recitation as to the orientation of the tangs recited other than "inwardly extending." (Claim App'x. A-1.) Instead, claim 1 merely recites "a set of inwardly extending tangs," which as discussed *supra*, we find equivalent to the angled leading tines of Schnittker's grounding ring. (FF S2, S3.) Accordingly, Patent Owner's argument is based on unclaimed limitations, and thus not commensurate with the scope of independent claim 1. We must be careful not to read a particular embodiment appearing in the written description into the claim if the claim language is broader than the embodiment. *See Superguide Corp.*, 358 F.3d at 875.

Additionally, Patent Owner argues that Schnittker fails to disclose the limitation "inwardly extending tangs restricting removal of said separate cables by force applied on said separate cables from said inbound end," as recited by independent claim 1. (PO App. Br. 11-12.) We are not persuaded by Patent Owner's argument and find that Schnittker describes that the

angled leading tines of the grounding ring engage the outer surface of the metal clad cable to create a force which resists pulling the cable out of the connector. (FF S4.) Accordingly, we find that the combination of Grindle, Schnittker, and Roeder discloses "inwardly extending tangs" which restrict the removal of separate cables from rearward force applied to the separate cables from the inbound end, as generally recited by independent claim 1.

Next, Patent Owner contends that the grounding ring disclosed in Schnittker is not secured in the inbound end of the connector and therefore would not engage any cables inserted until they were almost at the armor stop at the outbound end of the connector. (PO App. Br. 11.) This argument is without merit. One may not attack prior art references individually when the rejection is based on the combined teaching of references. *In re Keller*, 642 F.2d 413, 426 (CCPA 1981). Notwithstanding, Schnittker's cable connector is coupled to a junction box at its first open end **40** using threads **44**, which leaves the second open end **42** outside the junction box and distal to the first open end. (FF S2, S5.) Thus, we find Schnittker's grounding ring is secured in the inbound end of the connector.

With respect to Schnittker's armor stop, the Examiner does not rely on this element in the combination. Patent Owner earlier argued that "modify[ing] Grindle's connector with Schnittker's grounding ring must also include at least the grommet (18) and a gland nut (22) to compress the grommet in order to provide a cable retaining function according to Schnittker" (PO App. Br. 5), to which we responded *supra*, that these differences, did not distinguish the claimed cable retainer from reading on Schnittker's grounding ring. Now, Patent Owner argues the armor stop is

"also a critical element that must be included in the modified connector in order to immobilize or retain the inserted cables." (PO App. Br. 5; *see also* PO Response Br. 8.) We find this argument to be equally unpersuasive.

In making this determination, we find that the inlets of Grindle's multiple wire connector would function as an armor stop since they are sized to receive armored wire and the opposing wall portions of the inlets are brought together to completely surround the armor. (FF G2, 3, G4.) This configuration would effectively engage the distal end of metal clad cables and in conjunction with the inwardly extending tangs of Schnittker's cable retainers (FF S3, S4), retain the separate cables thereby restricting removal of the cables from the inbound end. Therefore, Patent Owner's arguments is unpersuasive.

Further, Patent Owner argues that there is no motivation to combine Grindle's duplex connector with Schnittker's grounding ring assembly since the inbound bores of the modified duplex connector would overlap each other in violation of the law of impenetrability. (PO App. Br. 7-8.) Specifically, Patent Owner alleges that Grindle's two inbound bores could not be modified by Schnittker's grounding ring because Schnittker's grounding ring requires a rubber grommet and gland nut, and as such the combination would require a large separation between the bores which would compromise the combination's ability to "receive and engage said separate cables inserted from said inbound end and guide said separate cables toward said cylindrical outbound end in a manner that said separate cables are advanced to said outbound end," as recited by claim 1. (PO App. Br. 8.) We cannot agree.

In making this determination, we find that that as discussed *supra*, Schnittker's grounding ring component is similar to, and capable of, performing the same function as, the cable retainer of independent claim 1. Patent Owner has failed to persuasively demonstrate that Schnittker's grounding ring cannot perform this cable retaining function and Claim 1 makes no recitation as to how the cable retainer is secured in each opening. "The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference . . . . Rather, the test is what the combined teachings of those references would have suggested to those of ordinary skill in the art." *In re Keller*, 642 F.2d at 425 (CCPA 1981). *See also In re Sneed*, 710 F.2d 1544, 1550 (Fed. Cir. 1983) ("[I]t is not necessary that the inventions of the references be physically combinable to render obvious the invention under review."); and *In re Nievelt*, 482 F.2d 965 (CCPA 1973) ("Combining the teachings of references does not involve an ability to combine their specific structures.").

Accordingly, we find that Schnittker's teaching of a grounding ring component used in a metal clad cable connector to ensure ground and also function as a cable retainer (FF S2, S3, S4) would have reasonably suggested to one of ordinary skill in the art at the time of the invention that such a component would be useful for retaining the metal clad cables used in the multiple wire connector of Grindle and an appropriate substitute to the screw used to hold the armor cable within the connector. (FF G2, G5.) "[W]hen a patent claims a structure already known in the prior art that is altered by the mere substitution of one element for another known in the

field, the combination must do more than yield a predictable result." *KSR*, 550 U.S. at 416. *See also In re Fout*, 675 F.2d 297, 301 (CCPA 1982) ("Express suggestion to substitute one equivalent for another need not be present to render such substitution obvious."); *In re Mayne*, 104 F.3d 1339, 1340 (Fed. Cir. 1997) ("Because the applicants merely substituted one element known in the art for a known equivalent, this court affirms [the rejection for obviousness].").

A person of ordinary skill in the art would have reasonably expected that this modification would provide Grindle's duplex connector with an enhanced capability of preventing or restricting the cables from forces that would otherwise remove the cables from their inbound ends. This combination would maintain equal resistance on each inlet in a way that the single screw of Grindle could not. Therefore, as stated in *KSR*, "familiar items may have obvious uses beyond their primary purposes, and in many cases a person of ordinary skill will be able to fit the teachings of multiple patents together like pieces of a puzzle." *KSR* at 420. Accordingly, Patent Owner's arguments are unpersuasive.

Additionally, Patent Owner argues that the combination of Grindle, Schnittker, and Roeder fails to discloses "a tubular spring steel adapter secured to said cylindrical outbound end of said housing, said adapter having outwardly extending tangs," as recited by independent claim 1. (PO App. Br. 12.) Specifically, Patent Owner alleges that a person skilled in the art of electrical connectors for metal clad cables would not look to Roeder since Roeder is directed to a "bushing," not an electrical connector and Roeder

describes using insulated wires rather than metal clad cables. (PO App. Br. 15.) We cannot agree.

In making this determination, we find that Roeder discloses a bushing means for attaching insulated wires to junctions boxes. (FF R1.) Roeder describes that this bushing means is a tubular connector having a peripheral member to receive a fastener with outturned lugs. (FF R1, R2.) These outturned lugs, which we consider equivalent to the claimed outwardly extending tangs, retract as the tubular connector is projected through a hole in a junction box and then snap into place behind the wall to hold the tubular member in place on the box. (FF R1, R4.) Thus, we find that Roeder's bushing is an electrical connector housing equivalent to the tubular spring steel adapter of claim 1. Based upon this teaching, the Examiner proposed to modify the connector of Grindle by substituting the tubular adapter of Roeder (FF R2) for the lock-nut and threads of Grindle's outbound end (FF G6) "so as to temporarily or removably [sic] secure the connector in place." (RAN 14-15; *see* FF R6.)

We agree with the Examiner's modification and even though Roeder's bushing means describes being used "temporarily or removably" for insulated wires rather than metal clad cables, we find that does not detract from the obviousness of a "mere substitution," especially given the predicable benefit of Roeder's ability to snap into place behind the wall of a junction box. (FF R1, R6.) "[W]hen . . . the prior art . . . is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result." *KSR*, 550 U.S. at 416. Accordingly, we find that skilled artisans would have merely

substituted one known connection means requiring lock-nut and threads to secure it for one with a fastener with outturned lugs which retract as the connector is projected into a junction box and then snap into place.

Patent Owner further alleges that Roeder's bushing means fails to adequately establish a proper grounding mechanism and that the connector housing is not meant as a permanent connector. (PO App. Br. 12.) These arguments fail from the outset as both arguments are drawn to unclaimed limitations. Notwithstanding these failings, we find that Patent Owner has failed to take into account what the collective teachings of Grindle, Schnittker, and Roeder would have suggested to a person having ordinary skill in the art. Moreover, a prior art reference must be considered for everything it teaches by way of technology and is not limited to the particular invention it is describing and attempting to protect. *EWP Corp. v. Reliance Universal Inc.*, 755 F.2d 898, 907 (Fed. Cir.), cert. denied, 474 U.S. 843 (1985). The use of patents as references is not limited to what the patentees describe as their own inventions or to the problems with which they are concerned, as they are a part of the literature and are relevant for all they contain. *In re Heck*, 699 F.2d 1331, 1333 (Fed. Cir. 1983).

Accordingly, we find that it is not necessary for one with ordinary skill to preserve every beneficial feature described by each reference in the combination. One with ordinary skill would have known that the grounding function of the modified duplex connector of Grindle and Schnittker is only provided if the cable being used is a metal clad cabling. Additionally, a person of ordinary skill would have had no difficulty understanding the importance of grounding metal clad cable to avoid short circuits and other

electrical accidents. Therefore, given that Roeder's tubular adapter is made at least in part of a metal fastener, it would be capable of maintaining a ground with metal clad cable, and thus within the scope of one of ordinary skill. (RAN 62; *see* FF R1.)

Similarly, a person of ordinary skill would understand that while metal clad cable provides many advantages, one distinct disadvantage to using the metal clad cable of Grindle and Schnittker is the increased weight of the metal over that of the insulated wire used by Roeder. Accordingly, we agree with the Examiner that it would be obvious to make Roeder's retainer and adapter of spring steel to allow for continual reuse to address the increase in weight. (RAN 15.) One with ordinary skill possesses ordinary creativity, and is not an automaton. *KSR,* 550 U.S *at* 421.

Further, Patent Owner's argues that Roeder teaches away from the proposed combination because Roeder fails to establish a proper grounding mechanism thereby producing an inoperative connector for armored cable. (PO App. Br. 15; *see also* John Ofcharsky Decl.) We find this argument to be unpersuasive.

> A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant. The degree of teaching away will of course depend on the particular facts; in general, a reference will teach away if it suggests that the line of development flowing from the reference's disclosure is unlikely to be productive of the result sought by the applicant.

In re Gurley, 27 F.3d 551, 553 (Fed. Cir. 1994).

We find no basis to conclude that one of ordinary skill would be discouraged by Roeder's use of an insulated wire in its connector housing such that one of ordinary skill would ignore Roeder's teaching of a tubular adapter having outwardly extending tangs which snaps the connector into a junction box. (FF R1.) Instead, we agree with the Examiner that Grindle, Schnittker, and Roeder "are all analogous [art] since all are in the electrical connector art." (RAN 51.) Therefore, for these reasons, and the reasons discussed *supra*, we find that the combination of Grindle, Schnittker, and Roeder discloses the limitations of independent claim 1.

As such, we conclude that the Examiner has established a prima facie basis to reject independent claim 1 under 35 U.S.C. § 103(a).

Secondary Considerations

Patent Owner argues that the claimed invention is not obvious in light of "Patentee's strong showing of commercial success" and other evidence of secondary considerations showing nonobviousness. (PO App. Br. 23.) Specifically, Patent Owner argues that there is a nexus between the claims and commercial success of the claimed product, copying, and a long-felt need. (PO App. Br. 23-29.) Patent Owner supports these arguments with declaration evidence discussed *infra*. (App. Br. 23-29).

We recognize that evidence of secondary considerations, such as that presented by Patent Owner must be considered in route to a determination of obviousness under 35 U.S.C. § 103. Accordingly, we consider anew the issue of obviousness under 35 U.S.C. § 103, carefully evaluating and weighing both the evidence relied upon by the Examiner and the objective

evidence of nonobviousness provided by Patent Owner. "An applicant may rebut a prima facie case of obviousness by providing a 'showing of facts supporting the opposite conclusion.' Such a showing dissipates the prima facie holding and requires the Examiner to 'consider all of the evidence anew.'" *In re Kumar* 418 F.3d 1361, 1368 (Fed. Cir. 2005).

Commercial Success

We must first examine whether Patent Owner has met their burden of establishing a nexus between the claimed invention and the evidence of secondary considerations. *In re Huang*, 100 F.3d at 139-40. Patent Owner asserts that a nexus exists between the claims of the '831 patent and the evidence submitted by Patent Owner alleging commercial success. (PO App. Br. 24.) To support this assertion, Patent Owner relies on multiple declarations, which Patent Owner contends, "confirm that the product sold by Patentee contains the claimed features and that the claimed features alone are responsible for the commercial success." (PO App. Br. 24.) We find these declarations to be unpersuasive.

Turning first to Patent Owner's third-party declarations, we find that Patent Owner has failed to demonstrate that the declarations of Robert Stella, hereinafter "R. Stella Decl.," Ken Stella, hereinafter "K. Stella Decl.,"and George Wallis, hereinafter "Wallis Decl." provide objective evidence that the commercial success of the product is due to claimed features of the '831 patent. None of the declarations demonstrate that the features discussed in the R. Stella, K. Stella, and Wallis declarations are reasonably commensurate within the scope of the duplex connector recited

by claim 1 or establish a nexus therein. *See In re Kao*, 639 F.3d at 1068 ("Evidence of secondary considerations must be reasonably commensurate with the scope of the claims.") For example, while these declarations generally describe features and benefits of a duplex connector, the declarations fail to provide a thorough, element-by-element analysis of the claimed duplex connector with the duplex connector described in the declarations demonstrating that the alleged commercial success was due to features within the scope of the claims. (*See* R. Stella Decl., K. Stella Decl., and Wallis Decl.) As such, we find these declarations fail to serve as objective evidence of secondary considerations of non-obviousness.

Similarly, we find Patent Owner's reliance on the Declaration of Thomas J. Gretz, the sole inventor, to be equally unpersuasive. An inventor's opinion as to the purchaser's reason for buying the product is insufficient to demonstrate a nexus between the sales and the claimed invention. *In re Huang*, 100 F.3d at 140. Even so, the Gretz declaration states that there were three embodiments of the '831 patent sold by Patent Owner, between 1999-2007. (Gretz Decl. ¶ 3.) Gretz states that these models were the 3838AST, 3838ST, and the 4040AST. (Gretz Decl. ¶ 2.) Gretz describes that "[t]he AST suffix denotes an insulated throat" and "[t]he 4040AST accepts larger sized flexible metal cables." (Gretz Decl. ¶ 2.) Gretz asserts that there were 16,727,840 units sold for the 3838AST model, 969,730 units sold for the 3838ST model, and 7,145,863 units sold for the 4040AST. (Gretz Decl. ¶ 3.) Based upon these data, we find the Gretz declaration demonstrates that 23,873,703 duplex connectors or 96% of the total 24,843,433 duplex connectors sold from 1999-2007 included the

unclaimed feature of an insulated throat designated by the AST in the model number. (Gretz Decl. ¶¶ 2 and 3.)

Thus, contrary to Patent Owner's contention that the commercial success of the product is due to the presence of claimed features, we find these sales data demonstrate evidence otherwise. Patent Owner must establish a nexus between the evidence of nonobviousness and the "claimed" invention, not between the evidence of nonobviousness and the invention "disclosed" in its Specification. *In re Fielder*, 471 F.2d 640, 646 (CCPA 1973); *In re Tiffin*, 448 F.2d at 792. Accordingly, we find that the sales data presented in the Gretz Declaration fails to demonstrate a nexus between the claimed invention and the evidence of commercial success.

Further, we find that Patent Owner's declarations fail to provide gross sales figures for the sale of the claimed duplex connectors as they relate to overall market share. *Cable Elec. Prods., Inc. v. Genmark, Inc.*, 770 F.2d 1015 1026-27 (Fed. Cir. 1985). The Gretz declaration compares the sales of the '831 patent's duplex connectors with the sales of other duplex connectors sold by Patent Owner (Gretz Decl. ¶¶ 3 and 4), but fails to indicate any change in market share required to show a nexus between the claimed invention and commercial success. While Patent Owner alleges that the Federal Circuit has made it clear that sales and revenue data alone may be sufficient to establish commercial success under certain circumstances (PO App. Br. 23-24 *citing Tec Air Inc. v. Denso Mfg.*, 192 F.3d 1353 (Fed. Cir. 1999)), we find that this is not one of those circumstances.

In *Tec Air*, the Federal Circuit found that no prima facie case of obviousness was established, and notwithstanding this finding, went on to

address the evidence of secondary considerations presented in light of this preliminary finding of nonobviousness. (*Id.* at 1360-1362.) In the instant case, a prima facie case of obviousness has been established *supra*. Therefore, without evidence of market share, it is our conclusion that the evidence presented is at best a very weak showing of commercial success, if any.

Accordingly, we find that Patent Owner's evidence and arguments are not commensurate with the scope of the claims, and as such, fail to establish a proper nexus between the claimed invention and commercial success.

Copying

As evidence of copying, Patent Owner relies on the declarations of R. Stella and K. Stella who both state that Requester's "connectors appear to be substantially similar if not identical to" Patentee's connectors and that in their opinions, both connectors have "the same features[,] and [Requestor's connectors] do not include any additional features or improvements" to the claimed connectors. (PO App. Br. 27; *see* R. Stella Decl. ¶ 8 and K. Stella Decl. ¶ 6.) Additionally, Patent Owner asserts that Ken M. Kiely's "yes," in response to a line of questioning during deposition, as to whether Requester's connectors were "cross-products just like" the claimed product of the '831 patent evidences copying. (PO App. Br. 27; *see* Kiely Dep. P. 215, ll. 7-18.) We do not find this line of argument to be compelling.

Even if accepted as true, R. Stella and K. Stella's declarations fail to establish that the alleged copies are identical to the claimed product. While the Stella declarations may state that the "connectors appear to be

substantially similar if not identical to" Requester's connectors (R. Stella Decl. ¶ 8 and K. Stella Decl. ¶ 6), neither declarant provides sufficient detail to make this determination. Similarly, we find that Ken M. Kiely's testimony acknowledging customer demand for a "cross-product" (*see* Kiely Dep. P. 215, ll. 7-18) fails to provide any detail establishing that the alleged copies are identical to the claimed product necessary to make a determination. Therefore, because the declaration evidence has not established that the alleged copies are identical, it is not persuasive evidence of copying. *Pentec, Inc. v. Graphic Controls Corp.*, 776 F.2d 309, 317 (Fed. Cir. 1985) (Alleged copying is not persuasive of nonobviousness when the copy is not identical to the claimed product.).

However, even if Patent Owner had established that the alleged copies were identical, Patent Owner has still not established copying.

> Not every competing product that arguably falls within the scope of a patent is evidence of copying. Otherwise every infringement suit would automatically confirm the nonobviousness of the patent. Rather, copying requires the replication of a specific product. This may be demonstrated either through internal documents, *see Akamai Techs., Inc. v. Cable & Wireless Internet Servs.*, Inc., 344 F.3d 1186, 1196-97 (Fed. Cir. 2003); direct evidence such as disassembling a patented prototype, photographing its features, and using the photograph as a blueprint to build a virtually identical replica, *see Advanced Display Sys., Inc. v. Kent State Univ.*, 212 F.3d 1272, 1285 (Fed.Cir.2000); or access to, and substantial similarity to, the patented product (as opposed to the patent), *Cable Elec. Prods., Inc. v. Genmark, Inc.*, 770 F.2d 1015, 1027 (Fed. Cir. 1985), overruled on other grounds by, *Midwest Indus., Inc. v. Karavan Trailers, Inc.*, 175 F.3d 1356, 1359 (Fed. Cir. 1999) (en banc).

Iron Grip Barbell Co., v. York Barbell Co., 392 F.3d 1317, 1325 (Fed. Cir. 2004).

Patent Owner has made no such showing here. While the Stella declarations contend that Requester's connectors are "substantially similar," they are bereft of detail, and thus not compelling evidence to show copying, i.e., specific knowledge and reproduction. Therefore, from the information submitted, we are unable to conclude that actual copying occurred, per Patent Owner's allegations. More than the mere allegation of copying is required to show nonobviousness.

Accordingly, Patent Owner has failed to show a nexus between the claimed invention and alleged copying.

Long-felt need

Patent Owner asserts there was a long-felt, but unsolved need "for a more expedient tool-less installation of duplex connectors." (PO App. Br. 27.) To support this assertion, Patent Owner relies on several declarations which Patent Owner alleges "confirm that a long-felt and unsolved need existed in the industry for a product with the claimed features." (PO App. Br. 27.)

Establishing long-felt need requires objective evidence that an art recognized problem existed for a long period of time without solution. *Newell Cos.*, 864 F.2d at 768; *Orthopedic Equip. Co*, 707 F.2d at 1379. Establishing long-felt need also requires objective evidence that the invention satisfies the long-felt need. *In re Cavanagh*, 436 F.2d at 496. This can be demonstrated, for example, by evidence establishing commercial

success and that the industry purchased the claimed invention because it satisfied the long-felt need. *See W.L. Gore & Assocs., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1555 (Fed. Cir. 1983).

Patent Owner has not provided persuasive objective evidence to establish that an art-recognized problem existed in the art for a long period of time without solution and have not provided persuasive objective evidence to establish that the claimed invention satisfies that long-felt need. While Patent Owner's third-party declarations refer to Patent Owner's product, no description is given identifying how the claimed features of the '831 patent satisfied the long-felt need or that the product was specifically purchased for a claimed feature. (*See* R. Stella Decl., K. Stella Decl., Wallis Decl., and Samuel Maira Decl.)

Similarly, we find Patent Owner's reliance on the Declaration of Thomas J. Gretz, sole inventor, to be unpersuasive. (PO App. Br. 27-28.) Given Gretz's interest in his own invention, we decline to give much weight to his opinion evidence identifying a "need to eliminate tools and to save on labor for the installation of duplex connectors" as it is vague and too general to be of probative value. (Gretz Decl. ¶ 6.) Equally unpersuasive is Patent Owner's reliance on Ken M. Kiely's testimony acknowledging customer demand for a "cross-product" (PO App. Br. 27-28; citing Kiely Dep. P. 215, ll. 7-18) since Patent Owner has not shown that the demand was for the product recited by the claims of '831 patent.

Therefore, Patent Owner's arguments that there was a long-felt but unsolved need are unpersuasive because arguments are not a substitute for evidence. *In re Pearson*, 494 F.2d 1399, 1405 (CCPA 1974) (Appellant's

arguments do not take the place of evidence). Accordingly, Patent Owner has failed to show a nexus between its solution to their alleged long-felt need and the claimed invention of the '931 patent.

In conclusion, the evidence of nonobviousness is not commensurate in scope with what the claims of the '831 patent, and as such, we find that Patent Owner has failed to establish the necessary nexus between the evidence of nonobviousness and the claimed invention. The evidence of nonobviousness as discussed *supra* is weak. In making our decision on the obviousness of Patent Owner's claims over prior art, the entirety of the evidence submitted, including the evidence based on the applied prior art and the evidence of nonobviousness based on secondary consideration factors, has been considered as a whole.

Evidence pertaining to secondary considerations must be taken into account whenever present; however, it does not necessarily control the obviousness conclusion. *See, e.g., Pfizer, Inc* 480 F.3d at 1372 ("the record establish[ed] such a strong case of obviousness" that allegedly unexpectedly superior results were ultimately insufficient to overcome obviousness conclusion); *Leapfrog Enters. Inc.*, 485 F.3d at 1162 ("given the strength of the prima facie obviousness showing, the evidence on secondary considerations was inadequate to overcome a final conclusion" of obviousness); and *Newell Cos., Inc.*, 864 F.2d at 768.

Accordingly, we sustain the Examiner's rejection of independent claim 1 under 35 U.S.C. § 103(a) as obvious over the combination of Grindle, Schnittker, and Roeder.

GROUNDS T and U

Dependent claims 5 and 6

Patent Owner does not separately argue claims 5 and 6, which depend from independent claim 1, and so we sustain the rejection of claims 5 and 6 under 35 U.S.C. § 103(a) as obvious over the combination of Grindle, Schnittker, and Roeder for the same reasons we found as to claim 1 *supra*.

Remaining Rejections

Affirmance of the obviousness rejection for all claims based on the combination of Grindle, Schnittker, and Roeder renders it unnecessary to reach the propriety of the Examiner's decision to reject those claims on a different basis. *Cf. In re Gleave*, 560 F.3d 1331, 1338 (Fed. Cir. 2009) (not reaching other rejections after finding an anticipation rejection to be upheld). As such, we need not reach the propriety of the rejection of those claims over the remaining rejections.

CONCLUSION

We conclude that the combination of Grindle, Schnittker, and Roeder discloses and makes obvious all the limitations of independent claim 1, 5, and 6 under 35 U.S.C. § 103(a). As such, we find that the Examiner did not err in making a final conclusion of obviousness in light of Patent Owner's evidence of secondary considerations.

DECISION

The Examiner's decision to reject claims 1, 5, and 6 as obvious over Grindle, Schnittker, and Roeder is AFFIRMED.

REQUESTER CROSS-APPEAL

Effective Filing Date

Requester contends that when properly construed, claim 1 reads on figure 3 of the '831 patent which is not present in its '661 grandparent patent or '884 parent patent. (*See* Requester's Comments filed August 6, 2007, pp. 5-8, hereinafter "TPR Comments 2007.") Specifically, Requester argues that proper construction of claim 1 of the '831 patent requires "parallel openings" in the "housing" and not in an "insert" as depicted in figures 1 and 2 of the '661 grandparent patent. (TPR Comments 2007 Pp. 18-21.) Requester considers the "insert" to be a critical limitation, and alleges that by relocating the "the pair of parallel openings" into the inbound end of the housing, the "insert" described the '661 patent was omitted. (TPR Comments 2007 Pp. 20-21.) Therefore, Requester alleges that the '661 patent fails to support claim 1 under 35 U.S.C. § 112, first paragraph for this configuration. (TPR Comments 2007 Pp. 5-6.)

The Examiner disagrees with Requester and determines that the effective filing date of claims 1, 4, and 5 of the '831 patent is August 13, 1999.[6] (RAN 7-10) In contrast, the Examiner found support under 35

[6] The Examiner determined that claims 2, 3, and 6 have an effective filing date of August 29, 2001, the filing date of the '831 patent. This determination was not challenged by either the Patent Owner or Requester. (RAN 10.)

U.S.C. § 112, first paragraph, for these claims in figures 1 and 2 of the '661 grandparent patent. Specifically, the Examiner finds that figure 1 of the '661 patent "shows a housing (12) with two parallel openings in the inbound end." (RAN 10.) Based upon this figure, the Examiner concluded under the broadest reasonable interpretation that the limitation "a pair of parallel openings in said inbound end" of claim 1 is supported by figures 1 and 2 of the '661 patent and figure 1 of the '831 patent. (RAN 8-10.) Additionally, the Examiner found that the "insert" depicted in figures 1 and 2 of the '661 patent was not an essential element of the originally disclosed invention of the '661 patent. (RAN 8.)

While:

> [a] claim will not be invalidated on section 112 grounds simply because the embodiments of the specification do not contain examples explicitly covering the full scope of the claim language…enough must be included to convince a person of skill in the art that the inventor possessed the invention and to enable such a person to make and use the invention without undue experimentation.

LizardTech v. Earth Res. Mapping, Inc., 424 F.3d 1336, 1345 (Fed. Cir. 2005). "[A] broad claim is invalid when the entirety of the specification clearly indicates that the invention is of a much narrower scope." *Cordis Corp. v. Medtronic AVE, Inc.*, 339 F.3d 1352, 1365, (Fed. Cir. 2003) (quoting *Cooper Cameron Corp. v. Kvaerner Oilfield Prod., Inc.*, 291 F.3d 1317, 1323 (Fed. Cir. 2002)).

We find the Examiner's position to be compelling.

Requester's position appears to be based largely on the observation that the "insert" depicted by figures 1 and 2 of the '661 grandparent patent does not appear in the language of claim 1 of the '831 patent. The Requester

has failed to present persuasive evidence or otherwise adequately explain why a person having ordinary skill in the art would not have understood from reading the '661 patent that the inventor had possession of "a pair of parallel openings in the inbound end" of the housing, given the disclosure provided by figures 1 and 2 of the '661 grandparent patent.

In contrast to Requester's allegation that the "insert" is an essential element of the invention, we are of the opinion that the '661 patent's disclosure does not clearly indicate that the duplex connector depicted in figures 1 and 2 of the '661 patent has the narrow scope alleged by Requester such that the "insert" would be considered an essential element of the '661 patent. While the '661 patent does disclose that its duplex connector includes a housing and an insert in the housing, the '661 patent discloses that its "invention relates to cable terminations and more particularly to duplex or two-wire cable terminations that snap into place and include snap-on cable retainers" and does not limit the scope of the invention to explicitly require the "insert" in claim 1. (FF Gp1, Gp2.) Additionally, Requester has failed to persuasively demonstrate that the '661 patent's disclosure in its entirety only supports an interpretation where the pair of parallel openings in the inbound end are part of the "insert." Therefore, we find that the '661 patent fails to explicitly indicate that the "insert" is an essential element of the invention or otherwise limit the scope of the invention to the narrow embodiment proposed by Requester.

Additionally, we agree with the Examiner that persons of ordinary skill in the art would understand that the limitation "a pair of parallel openings in said inbound end" reads on figure 1 of the '661 patent which

"shows a housing (12) with two parallel openings in the inbound end." (RAN 10.) Accordingly, since we find that one of ordinary skill in the art would recognize that that the inventor had possession of this limitation and Requester has failed to provide conclusive evidence that the "insert" is an essential element of the invention, we agree with the Examiner that figures 1 and 2 of the '661 patent adequately disclose the claimed subject matter of claims 1, 4, and 5 of the '831 patent. Therefore, we determine that there is sufficient continuity of disclosure of the subject matter of claims 1, 4 and 5 such that these claims are entitled to the filing date of the originally filed '661 grandparent patent.

As such, we determine that the effective filing date of the claims 1, 4, and 5 of the '831 patent is August 13, 1999. Each of Grounds C, D, G, H, I, J, L, M, N, O, P, and R includes a reference which fails to antedate the earliest effective filing date for at least independent claim 1 from which the remaining claims depend.

GROUNDS G, H, AND R

Requester cross-appeals the Examiner's decision to not adopt the proposed rejections of claim 3 under Ground R and claim 4 under Grounds G and H. (TPR App. Br. 16-19.) We sustain the Examiner's decision to not adopt the rejections under Grounds G, H, and R, as each ground relies on a reference which fails to antedate the earliest effective filing date for at least independent claim 1 from which claims 3 and 4 depend. Accordingly, we conclude that the Examiner did not err in not adopting the rejection of claims 3 and 4 under Grounds G, H, and R proposed by Requester.

GROUNDS A, C, D, K, I, J, L, M, N, O, AND P

Requester cross-appeals the Examiner's decision to not adopt the proposed rejection of claims 1, 5, and 6 under Grounds A, C, D, K, I, J, L, M, N, O, and P. However, because we have already affirmed the Examiner's rejection of these claims under Grounds B, T, and U, *supra*, we will not reach a decision for the non-adopted rejections for the same claims. 37 C.F.R. §41.77(a). As such, we make no findings of fact or judgment with respect to the Examiner's actions.

Entry of evidence submitted after the Action Closing Prosecution

Requester argues that the declarations of Ken Stella and Robert Stella were improperly entered and considered by the Examiner after the Action Closing Prosecution. (TPR App. Br. 22-23.) Requester asserts that the Patent Owner failed to make the required showing of good and sufficient reason why the declarations are necessary and were not presented earlier as required by 37 C.F.R. §§1.116 and 1.951. (TPR App. Br. 23.) The Examiner responds stating the declarations were entered because they concerned the persuasiveness of evidence of secondary considerations demonstrating nonobviousness which were raised in the ACP. (RAN 60.)

We do not find Requester's line of argument, however, to raise any issue that can be decided on appeal. The actions of the Examiner in such a matter are not within our purview. *In re Watkinson*, 900 F.2d 230, 232-33 (Fed. Cir. 1990) (The Board has no jurisdiction for matters within the discretion of the examiner and not tantamount to a rejection of claims).

Procedural matters, such as the propriety of the Examiner's decision to enter the declarations of Ken Stella and Robert Stella, should have been raised by way of a timely petition pursuant to 37 C.F.R. § 1.181.

Because we have jurisdiction over an appeal from a final rejection under 35 U.S.C. §§ 134(b) and 315(a), but not over such petitionable matters, the time period for raising such matters having long lapsed, we decline to consider Requester's arguments. As such, we make no findings of fact or judgment with respect to the Examiner's actions.

CONCLUSION

We conclude that the Examiner did not err in in determining that there is sufficient continuity of disclosure for the subject matter of claims 1, 4 and 5 such that these claims are entitled to the filing date of the originally filed '661 grandparent patent. Additionally, we conclude that the Examiner did not err in not adopting the rejection of claims 3 and 4 under Grounds G, H, and R proposed by Requester.

DECISION

The Examiner's refusal to adopt the rejections proposed by Requester in Grounds G, H, and R is AFFIRMED.

Requests for rehearing in this *inter partes* reexamination proceeding are governed by 37 C.F.R. § 41.79.

AFFIRMED

ack

Appeal 2011-009135
Reexamination Control No. 95/000,196
Patent 6,521,831 B1

cc:

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
95/000,196	01/26/2007	6521831	IE-831	3931

30010 7590 01/31/2013
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ART UNIT	PAPER NUMBER
3993	

MAIL DATE	DELIVERY MODE
01/31/2013	PAPER

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The time period for reply, if any, is set in the attached communication.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEALS BOARD

BRIDGEPORT FITTINGS, INC.
Third Party Requester, Respondent, Appellant

v.

ARLINGTON INDUSTRIES, INC.
Patent Owner, Respondent, Appellant

Appeal 2011-009135
Inter partes Reexamination Control 95/000,196
United States Patent 6,521,831 B1
Technology Center 3900

Before RICHARD TORCZON, SCOTT R. BOALICK, and KEVIN F. TURNER, *Administrative Patent Judges*.

TURNER, *Administrative Patent Judge*

DECISION ON REQUEST FOR REHEARING

STATEMENT OF THE CASE

Patent Owner and Appellant (hereinafter "Patent Owner") requests that we reconsider the Panel's Decision of December 16, 2011 (hereinafter "Decision"), in Patent Owner's Request for Rehearing (hereinafter "Request"), filed January 17, 2012 ("Req. Reh'g."), wherein we affirmed the Examiner's decision to reject claims 1, 5, and 6 under 35 U.S.C. § 103(a) as unpatentable over Grindle, Schnittker, and Roeder (Grounds B, T, and U). (Decision 43.)

Third Party Requester urges that the Board deny Patent's Owner's Request for Rehearing in a Response to Request for Rehearing, filed February 17, 2012.

Based on the discussion which follows, the request for rehearing is denied.

DISCUSSION

At the outset, we note that a majority of Patent Owner's request for rehearing fails to comply with 37 C.F.R. § 41.52(a)(1) since it fails to "state with particularity the points believed to have been misapprehended or overlooked by the Board." *See* 37 C.F.R. § 41.52(a)(1). Rather than argue the points of law or fact which Patent Owner feels were overlooked or misapprehended in the Decision, Patent Owner now attempts to reargue and remake its case with new arguments, not raised in their original Brief.

In particular, Patent Owner now argues that the modified connector taught by the combination of Grindle, Schnittker, and Roeder requires "twisting for locking," which is not the same as the '831 patent, which

"snap[s] into place." (Req. Reh'g. 6-7.) However, the instant argument was not made by Patent Owner in their Appeal Brief filed November 3, 2010, and as such we find that the argument was neither overlooked nor misapprehended.

Alternatively, the aspect of "snap[ping] into place" is not set forth in independent claim 1, and as such, cannot serve to distinguish the claim from the prior art. *See CollegeNet, Inc. v. ApplyYourself, Inc.*, 418 F.3d 1225, 1231 (Fed. Cir. 2005) (while the specification can be examined for proper context of a claim term, limitations from the specification will not be imported into the claims). Nor does Patent Owner's contention that the modified connector taught by the combination of Grindle, Schnittker, and Roeder "twist[s]for locking" serve to distinguish claim 1 from the prior art, as its use of the open-ended transitional phrase "comprising" allows for additional unrecited elements. *See CIAS, Inc. v. Alliance Gaming Corp.*, 504 F.3d 1356, 1360-61 (Fed. Cir. 2007). Thus, Patent Owner's belated argument is not persuasive.

Additionally, Patent Owner argues in their Request that the combination of Grindle, Schnittker, and Roeder fails to teach or suggest a tubular grounding ring since the grounding ring in Schnittker is "initially a flat configuration . . . [and] then rolled into the shape." (Req. Reh'g. 8-9.) Again, Patent Owner's argument fails to persuade us that the Decision overlooked or misapprehended any points of law or fact with respect to this argument, as the argument was not made upon appeal.

Nevertheless, on rehearing, we do not find Patent Owner's argument to be persuasive. While Schnittker's grounding ring may initially be flat,

this does not change the fact that it is made annular when inserted into the tubular body depicted by Figure 4 of Schnittker, (*See* Schnittker Col 5, ll. 21-35) or into the bore of Grindle's housing in the combination asserted by the Examiner. (*See* Decision 23-25; *See also* Grindle Fig. 1.)

While we acknowledge that Schnittker's grounding ring does include a small gap, Patent Owner does not point to any definition of "tubular" in their Specification which would otherwise prevent the "tubular spring steel cable retainer" of claim 1 from reading on Schnittker's grounding ring. "'During reexamination, as with original examination, the PTO must give claims their broadest reasonable construction consistent with the specification.'" *In re Suitco Surface, Inc.*, 603 F.3d 1255, 1259 (Fed. Cir. 2010) (quoting *In re ICON Health and Fitness, Inc.*, 496 F.3d 1374, 1379 (Fed. Cir. 2007)). Thus, Patent Owner's untimely argument is not persuasive.

Moreover, Patent Owner argues that the combination of Grindle, Schnittker, and Roeder fails to teach or suggest an "[a]nalogous [c]able [r]etainer" since Schnittker's grounding ring requires thirteen parts compared to the '831 patent which only requires five. (Req. Reh'g. 9.) Specifically, Patent Owner asserts that Schnittker's grounding ring is located in the middle to outbound end, rather than the inbound end and includes an armor stop which prevents the armored cables from being guided to the single outbound end. (Req. Reh'g. 9-10.)

We are not persuaded by Patent Owner's argument and, as discussed *supra*, determine that independent claim 1 uses the open-ended transitional term "comprising," which does not exclude additional, unrecited elements.

See CIAS, Inc. v. Alliance Gaming Corp., 504 F.3d at 1360-61. While we acknowledged in the Decision that Schnittker's grounding ring must also include additional "parts" (i.e., grommet (18), gland nut (22)), we stated in the Decision that there is no language in the claims that limits or otherwise distinguishes the claimed cable retainer from reading on Schnittker's grounding ring, as modified by the combination asserted by the Examiner. (*See* Decision 27-28.)

Equally unpersuasive is Patent Owner's assertion regarding Schnittker's armor stop, as it attacks the references separately, even though the rejection is based on the combined teachings of the references. Nonobviousness cannot be established by attacking the references individually when the rejection is predicated upon a combination of prior art disclosures. *See In re Merck & Co. Inc.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986). As the Decision pointed out, the Examiner does not rely on Schnittker's armor stop, but instead relies on the combination of Grindle, Schnittker, and Roeder. (Decision 26-28.) Thus, Patent Owner's argument has not shown that we misapprehended or overlooked any points of law or facts.

Patent Owner next reargues that the asserted combination "is not actually possible because the individual components (which reflect the teachings) cannot be physically combined while meeting the' 831 claim limitations," and thus, no motivation exists to combine the references. (Req. Reh'g. 11-12.) We are not persuaded by Patent Owner's argument as the criterion for combining references is "not whether the references could be physically combined but whether the claimed inventions are rendered

obvious by the teachings of the prior art as a whole." *In re Etter*, 756 F.2d 852, 859 (Fed. Cir. 1985). As such, Patent Owner's argument fails to demonstrate any misapprehension by the Board.

In the Decision, we stated:

> Schnittker's teaching of a grounding ring component used in a metal clad cable connector to ensure ground and also function as a cable retainer would have reasonably suggested to one of ordinary skill in the art at the time of the invention that such a component would be useful for retaining the metal clad cables used in the multiple wire connector of Grindle and an appropriate substitute to the screw used to hold the armor cable within the connector . . . .

(Decision 29.)

In light of this finding and given that Patent Owner has not persuaded us otherwise, we maintain that each of the elements of the claim to be taught by the combination of Grindle, Schnittker, and Roeder. Furthermore, the Decision concluded that:

> [a] person of ordinary skill in the art would have reasonably expected that this modification would provide Grindle's duplex connector with an enhanced capability of preventing or restricting the cables from forces that would otherwise remove the cables from their inbound ends. This combination would maintain equal resistance on each inlet in a way that the single screw of Grindle could not.

(Decision 30.)

In a case such as this, where each of the elements of the claim is known to the art, the obviousness inquiry requires a finding that the combination of known elements was obvious to a person with ordinary skill

in the art. *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 420 (2007). Accordingly, in the absence of any persuasive evidence to the contrary, Patent Owner's argument fails to persuade us that the Decision misapprehended or overlooked any points of law or fact.

Further, Patent Owner argues the Board applied the wrong standard in considering Patent Owner's evidence of secondary considerations against obviousness in an *inter partes* reexamination "akin to a contested proceeding." (Req. Reh'g. 18-19.) Specifically, Patent Owner asserts that the Board erred by placing the burden on Patent Owner to establish a nexus between the claimed invention and evidence of secondary considerations, given that Requester failed to challenge Patent Owner's evidence with its own evidence. (Req. Reh'g. 18-19.)

We are not persuaded by Patent Owner's argument and in the absence of any persuasive evidence or precedent to the contrary, decline to modify our Decision based solely on attorney arguments.[1] Accordingly, we are not persuaded that the Decision misapprehended or overlooked any argument, or point of fact or law.

Lastly, to the extent Patent Owner's Request for Rehearing addresses the Decision's analysis of Patent Owner's evidence of secondary considerations of nonobviousness, these arguments simply reiterate what was already said in their Appeal Brief and fail to recite the points of law or

[1] *Cf Lingamfelter v. Kappos*, No. 2011-1449, 2012 WL 3218529, at 6 (C.A. Fed., 2012) (secondary considerations of obviousness did not rebut prima facie case of obviousness in inter partes proceedings for reexamination where patent owner failed to sufficiently establish nexus between economic success and the claimed features).

fact which Patent Owner feels were overlooked or misapprehended in that analysis. (Req. Reh'g. 13-18.)

While we have already addressed these same arguments regarding commercial success (Req. Reh'g. 15-16) and long-felt need (Req. Reh'g. 16-18) in our Decision (Decision 34-42), we nevertheless will briefly revisit our reasons for maintaining our determination that Patent's Owner's evidence of nonobviousness is not commensurate in scope with the claims of the '831 patent, and as such, insufficient to establish the necessary nexus between the evidence of nonobviousness and the claimed invention.

With respect to commercial success, we noted that the declarations of R. Stella, K. Stella, and Wallis are not reasonably commensurate with the scope of the duplex connector recited by claim 1 or establish a nexus therein, but rather generally describe features and benefits of a generic duplex connector. (Decision 35-36.) With respect to the Declaration of Thomas J. Gretz, sole inventor, we stated:

> the Gretz declaration states that there were three embodiments of the '831 patent sold by Patent Owner, between 1999-2007. (Gretz Decl. ¶ 3.) Gretz states that these models were the 3838AST, 3838ST, and the 4040AST. (Gretz Decl. ¶ 2.) Gretz describes that "[t]he AST suffix denotes an insulated throat" and "[t]he 4040AST accepts larger sized flexible metal cables." (Gretz Decl. ¶ 2.) Gretz asserts that there were 16,727,840 units sold for the 3838AST model, 969,730 units sold for the 3838ST model, and 7,145,863 units sold for the 4040AST. (Gretz Decl. ¶ 3.) Based upon these data, we find the Gretz declaration demonstrates that 23,873,703 duplex connectors or 96% of the total 24,843,433 duplex connectors sold from 1999-2007 included the unclaimed feature of an insulated throat

> designated by the AST in the model number. (Gretz Decl. ¶¶ 2 and 3.)

(Decision 36-37.)

Based on these findings, the Decision generally concluded that "the sales data presented in the Gretz Declaration [along with the declarations of R. Stella, K. Stella, and Wallis] fails to demonstrate a nexus between the claimed invention and the evidence of commercial success." (Decision 37.) Accordingly, since Patent Owner's Request for Rehearing does not contest these findings, we are not persuaded that the Decision misapprehended or overlooked any argument, or point of fact or law.

Similarly, with respect to a long-felt need, we noted in the Decision that Patent Owner's third-party declarations fail to "identify[]how the claimed features of the '831 patent satisfied the long-felt need or that the product was specifically purchased for a claimed feature." (Decision 41.) We also stated that we find:

> the Declaration of Thomas J. Gretz, sole inventor, to be unpersuasive. (PO App. Br. 27-28.) Given Gretz's interest in his own invention, we decline to give much weight to his opinion evidence identifying a "need to eliminate tools and to save on labor for the installation of duplex connectors" as it is vague and too general to be of probative value. (Gretz Decl. ¶ 6.) Equally unpersuasive is Patent Owner's reliance on Ken M. Kiely's testimony acknowledging customer demand for a "cross-product" (PO App. Br. 27-28; citing Kiely Dep. P. 215, ll. 7-18) since Patent Owner has not shown that the demand was for the product recited by the claims of '831 patent.

(Decision 41.)

Thus, we concluded that Patent Owner failed to show a nexus between its solution to their alleged long-felt need and the claimed invention of the '831 patent. Again, Patent Owner's Request for Rehearing fails to demonstrate that our Decision misapprehended or overlooked any point of fact or law in making this determination, and as such, is not persuasive.

Accordingly, while we have granted Patent Owner's request for rehearing to the extent that we have reconsidered our previous decision, the request is denied with respect to modifying our original Decision.

REHEARING DENIED

alw

cc:

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEALS BOARD

BRIDGEPORT FITTINGS, INC.
Third Party Requester, Respondent, Appellant

v.

ARLINGTON INDUSTRIES, INC.
Patent Owner, Respondent, Appellant

Appeal 2011-009135
Inter partes Reexamination Control 95/000,196
United States Patent 6,521,831 B1
Technology Center 3900

Before RICHARD TORCZON, SCOTT R. BOALICK, and KEVIN F. TURNER, *Administrative Patent Judges*.

TURNER, *Administrative Patent Judge*

DECISION ON REQUEST FOR REHEARING

STATEMENT OF THE CASE

Patent Owner and Appellant (hereinafter "Patent Owner") requests that we reconsider the Panel's Decision of December 16, 2011 (hereinafter "Decision"), in Patent Owner's Request for Rehearing (hereinafter "Request"), filed January 17, 2012 ("Req. Reh'g."), wherein we affirmed the Examiner's decision to reject claims 1, 5, and 6 under 35 U.S.C. § 103(a) as unpatentable over Grindle, Schnittker, and Roeder (Grounds B, T, and U). (Decision 43.)

Third Party Requester urges that the Board deny Patent's Owner's Request for Rehearing in a Response to Request for Rehearing, filed February 17, 2012.

Based on the discussion which follows, the request for rehearing is denied.

DISCUSSION

At the outset, we note that a majority of Patent Owner's request for rehearing fails to comply with 37 C.F.R. § 41.52(a)(1) since it fails to "state with particularity the points believed to have been misapprehended or overlooked by the Board." *See* 37 C.F.R. § 41.52(a)(1). Rather than argue the points of law or fact which Patent Owner feels were overlooked or misapprehended in the Decision, Patent Owner now attempts to reargue and remake its case with new arguments, not raised in their original Brief.

In particular, Patent Owner now argues that the modified connector taught by the combination of Grindle, Schnittker, and Roeder requires "twisting for locking," which is not the same as the '831 patent, which

"snap[s] into place." (Req. Reh'g. 6-7.) However, the instant argument was not made by Patent Owner in their Appeal Brief filed November 3, 2010, and as such we find that the argument was neither overlooked nor misapprehended.

Alternatively, the aspect of "snap[ping] into place" is not set forth in independent claim 1, and as such, cannot serve to distinguish the claim from the prior art. *See CollegeNet, Inc. v. ApplyYourself, Inc.*, 418 F.3d 1225, 1231 (Fed. Cir. 2005) (while the specification can be examined for proper context of a claim term, limitations from the specification will not be imported into the claims). Nor does Patent Owner's contention that the modified connector taught by the combination of Grindle, Schnittker, and Roeder "twist[s]for locking" serve to distinguish claim 1 from the prior art, as its use of the open-ended transitional phrase "comprising" allows for additional unrecited elements. *See CIAS, Inc. v. Alliance Gaming Corp.*, 504 F.3d 1356, 1360-61 (Fed. Cir. 2007). Thus, Patent Owner's belated argument is not persuasive.

Additionally, Patent Owner argues in their Request that the combination of Grindle, Schnittker, and Roeder fails to teach or suggest a tubular grounding ring since the grounding ring in Schnittker is "initially a flat configuration . . . [and] then rolled into the shape." (Req. Reh'g. 8-9.) Again, Patent Owner's argument fails to persuade us that the Decision overlooked or misapprehended any points of law or fact with respect to this argument, as the argument was not made upon appeal.

Nevertheless, on rehearing, we do not find Patent Owner's argument to be persuasive. While Schnittker's grounding ring may initially be flat,

this does not change the fact that it is made annular when inserted into the tubular body depicted by Figure 4 of Schnittker, (*See* Schnittker Col 5, ll. 21-35) or into the bore of Grindle's housing in the combination asserted by the Examiner. (*See* Decision 23-25; *See also* Grindle Fig. 1.)

While we acknowledge that Schnittker's grounding ring does include a small gap, Patent Owner does not point to any definition of "tubular" in their Specification which would otherwise prevent the "tubular spring steel cable retainer" of claim 1 from reading on Schnittker's grounding ring. "'During reexamination, as with original examination, the PTO must give claims their broadest reasonable construction consistent with the specification.'" *In re Suitco Surface, Inc.*, 603 F.3d 1255, 1259 (Fed. Cir. 2010) (quoting *In re ICON Health and Fitness, Inc.*, 496 F.3d 1374, 1379 (Fed. Cir. 2007)). Thus, Patent Owner's untimely argument is not persuasive.

Moreover, Patent Owner argues that the combination of Grindle, Schnittker, and Roeder fails to teach or suggest an "[a]nalogous [c]able [r]etainer" since Schnittker's grounding ring requires thirteen parts compared to the '831 patent which only requires five. (Req. Reh'g. 9.) Specifically, Patent Owner asserts that Schnittker's grounding ring is located in the middle to outbound end, rather than the inbound end and includes an armor stop which prevents the armored cables from being guided to the single outbound end. (Req. Reh'g. 9-10.)

We are not persuaded by Patent Owner's argument and, as discussed *supra*, determine that independent claim 1 uses the open-ended transitional term "comprising," which does not exclude additional, unrecited elements.

See CIAS, Inc. v. Alliance Gaming Corp., 504 F.3d at 1360-61. While we acknowledged in the Decision that Schnittker's grounding ring must also include additional "parts" (i.e., grommet (18), gland nut (22)), we stated in the Decision that there is no language in the claims that limits or otherwise distinguishes the claimed cable retainer from reading on Schnittker's grounding ring, as modified by the combination asserted by the Examiner. (*See* Decision 27-28.)

Equally unpersuasive is Patent Owner's assertion regarding Schnittker's armor stop, as it attacks the references separately, even though the rejection is based on the combined teachings of the references. Nonobviousness cannot be established by attacking the references individually when the rejection is predicated upon a combination of prior art disclosures. *See In re Merck & Co. Inc.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986). As the Decision pointed out, the Examiner does not rely on Schnittker's armor stop, but instead relies on the combination of Grindle, Schnittker, and Roeder. (Decision 26-28.) Thus, Patent Owner's argument has not shown that we misapprehended or overlooked any points of law or facts.

Patent Owner next reargues that the asserted combination "is not actually possible because the individual components (which reflect the teachings) cannot be physically combined while meeting the '831 claim limitations," and thus, no motivation exists to combine the references. (Req. Reh'g. 11-12.) We are not persuaded by Patent Owner's argument as the criterion for combining references is "not whether the references could be physically combined but whether the claimed inventions are rendered

obvious by the teachings of the prior art as a whole." *In re Etter*, 756 F.2d 852, 859 (Fed. Cir. 1985). As such, Patent Owner's argument fails to demonstrate any misapprehension by the Board.

In the Decision, we stated:

> Schnittker's teaching of a grounding ring component used in a metal clad cable connector to ensure ground and also function as a cable retainer would have reasonably suggested to one of ordinary skill in the art at the time of the invention that such a component would be useful for retaining the metal clad cables used in the multiple wire connector of Grindle and an appropriate substitute to the screw used to hold the armor cable within the connector . . . .

(Decision 29.)

In light of this finding and given that Patent Owner has not persuaded us otherwise, we maintain that each of the elements of the claim to be taught by the combination of Grindle, Schnittker, and Roeder. Furthermore, the Decision concluded that:

> [a] person of ordinary skill in the art would have reasonably expected that this modification would provide Grindle's duplex connector with an enhanced capability of preventing or restricting the cables from forces that would otherwise remove the cables from their inbound ends. This combination would maintain equal resistance on each inlet in a way that the single screw of Grindle could not.

(Decision 30.)

In a case such as this, where each of the elements of the claim is known to the art, the obviousness inquiry requires a finding that the combination of known elements was obvious to a person with ordinary skill

in the art. *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 420 (2007). Accordingly, in the absence of any persuasive evidence to the contrary, Patent Owner's argument fails to persuade us that the Decision misapprehended or overlooked any points of law or fact.

Further, Patent Owner argues the Board applied the wrong standard in considering Patent Owner's evidence of secondary considerations against obviousness in an *inter partes* reexamination "akin to a contested proceeding." (Req. Reh'g. 18-19.) Specifically, Patent Owner asserts that the Board erred by placing the burden on Patent Owner to establish a nexus between the claimed invention and evidence of secondary considerations, given that Requester failed to challenge Patent Owner's evidence with its own evidence. (Req. Reh'g. 18-19.)

We are not persuaded by Patent Owner's argument and in the absence of any persuasive evidence or precedent to the contrary, decline to modify our Decision based solely on attorney arguments.[1] Accordingly, we are not persuaded that the Decision misapprehended or overlooked any argument, or point of fact or law.

Lastly, to the extent Patent Owner's Request for Rehearing addresses the Decision's analysis of Patent Owner's evidence of secondary considerations of nonobviousness, these arguments simply reiterate what was already said in their Appeal Brief and fail to recite the points of law or

[1] *Cf Lingamfelter v. Kappos*, No. 2011-1449, 2012 WL 3218529, at 6 (C.A. Fed., 2012) (secondary considerations of obviousness did not rebut prima facie case of obviousness in inter partes proceedings for reexamination where patent owner failed to sufficiently establish nexus between economic success and the claimed features).

fact which Patent Owner feels were overlooked or misapprehended in that analysis. (Req. Reh'g. 13-18.)

While we have already addressed these same arguments regarding commercial success (Req. Reh'g. 15-16) and long-felt need (Req. Reh'g. 16-18) in our Decision (Decision 34-42), we nevertheless will briefly revisit our reasons for maintaining our determination that Patent's Owner's evidence of nonobviousness is not commensurate in scope with the claims of the '831 patent, and as such, insufficient to establish the necessary nexus between the evidence of nonobviousness and the claimed invention.

With respect to commercial success, we noted that the declarations of R. Stella, K. Stella, and Wallis are not reasonably commensurate with the scope of the duplex connector recited by claim 1 or establish a nexus therein, but rather generally describe features and benefits of a generic duplex connector. (Decision 35-36.) With respect to the Declaration of Thomas J. Gretz, sole inventor, we stated:

> the Gretz declaration states that there were three embodiments of the '831 patent sold by Patent Owner, between 1999-2007. (Gretz Decl. ¶ 3.) Gretz states that these models were the 3838AST, 3838ST, and the 4040AST. (Gretz Decl. ¶ 2.) Gretz describes that "[t]he AST suffix denotes an insulated throat" and "[t]he 4040AST accepts larger sized flexible metal cables." (Gretz Decl. ¶ 2.) Gretz asserts that there were 16,727,840 units sold for the 3838AST model, 969,730 units sold for the 3838ST model, and 7,145,863 units sold for the 4040AST. (Gretz Decl. ¶ 3.) Based upon these data, we find the Gretz declaration demonstrates that 23,873,703 duplex connectors or 96% of the total 24,843,433 duplex connectors sold from 1999-2007 included the unclaimed feature of an insulated throat

> designated by the AST in the model number. (Gretz Decl. ¶¶ 2 and 3.)

(Decision 36-37.)

Based on these findings, the Decision generally concluded that "the sales data presented in the Gretz Declaration [along with the declarations of R. Stella, K. Stella, and Wallis] fails to demonstrate a nexus between the claimed invention and the evidence of commercial success." (Decision 37.) Accordingly, since Patent Owner's Request for Rehearing does not contest these findings, we are not persuaded that the Decision misapprehended or overlooked any argument, or point of fact or law.

Similarly, with respect to a long-felt need, we noted in the Decision that Patent Owner's third-party declarations fail to "identify[]how the claimed features of the '831 patent satisfied the long-felt need or that the product was specifically purchased for a claimed feature." (Decision 41.) We also stated that we find:

> the Declaration of Thomas J. Gretz, sole inventor, to be unpersuasive. (PO App. Br. 27-28.) Given Gretz's interest in his own invention, we decline to give much weight to his opinion evidence identifying a "need to eliminate tools and to save on labor for the installation of duplex connectors" as it is vague and too general to be of probative value. (Gretz Decl. ¶ 6.) Equally unpersuasive is Patent Owner's reliance on Ken M. Kiely's testimony acknowledging customer demand for a "cross-product" (PO App. Br. 27-28; citing Kiely Dep. P. 215, ll. 7-18) since Patent Owner has not shown that the demand was for the product recited by the claims of '831 patent.

(Decision 41.)

Thus, we concluded that Patent Owner failed to show a nexus between its solution to their alleged long-felt need and the claimed invention of the '831 patent. Again, Patent Owner's Request for Rehearing fails to demonstrate that our Decision misapprehended or overlooked any point of fact or law in making this determination, and as such, is not persuasive.

Accordingly, while we have granted Patent Owner's request for rehearing to the extent that we have reconsidered our previous decision, the request is denied with respect to modifying our original Decision.

REHEARING DENIED

alw

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MCLEAN, VA 22102

US006521831B1

(12) **United States Patent**
Gretz

(10) **Patent No.: US 6,521,831 B1**
(45) **Date of Patent: *Feb. 18, 2003**

(54) **DUPLEX ELECTRICAL CONNECTOR WITH SPRING STEEL CABLE RETAINER**

(75) Inventor: **Thomas J. Gretz**, Clarks Summit, PA (US)

(73) Assignee: **Arlington Industries, Inc.**, Scranton, PA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **09/941,341**

(22) Filed: **Aug. 29, 2001**

Related U.S. Application Data

(63) Continuation-in-part of application No. 09/792,185, filed on Feb. 23, 2001, now Pat. No. 6,355,884, which is a continuation-in-part of application No. 09/373,427, filed on Aug. 13, 1999, now Pat. No. 6,194,661.

(51) **Int. Cl.**[7] **H02G 3/18**
(52) **U.S. Cl.** ..... **174/65 R**; 439/552; 174/153 R
(58) **Field of Search** ..... 174/65 R, 153 R, 174/59, 60, 61, 62, 151, 65 G, 153 G; 439/552

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,373,106 A * 12/1994 O'Neil et al. ..... 174/65 R
6,080,933 A * 6/2000 Gretz ..... 174/65 R

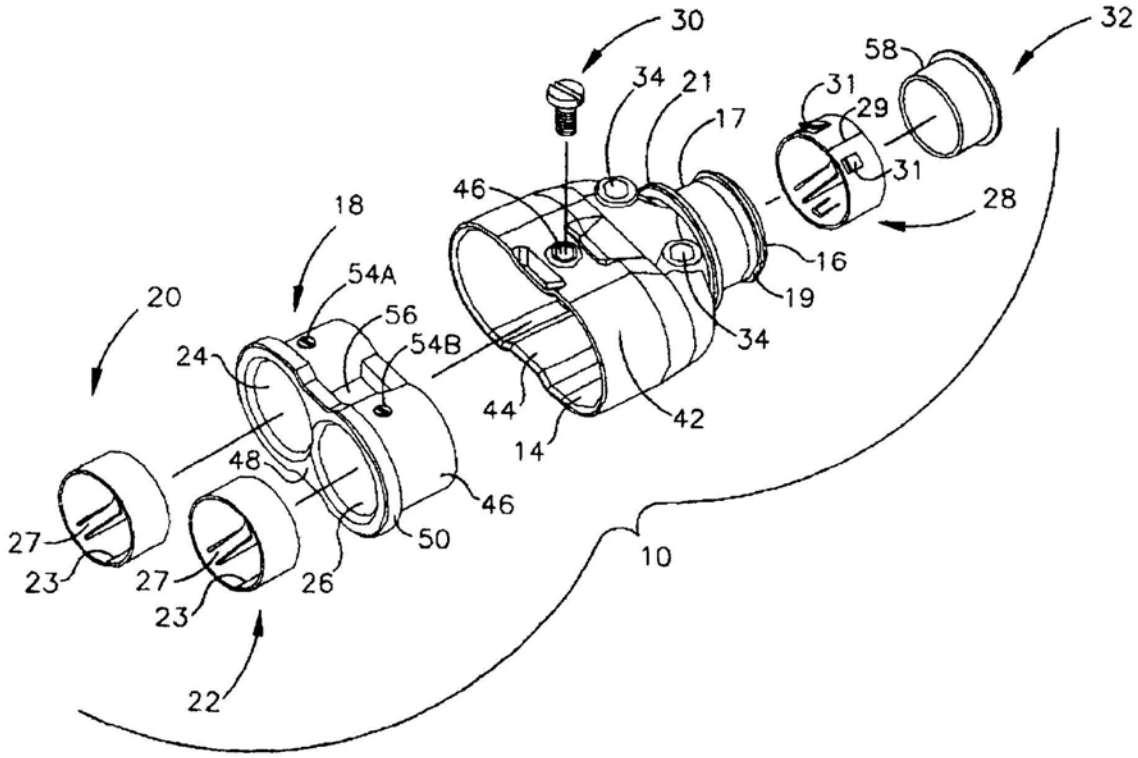
* cited by examiner

Primary Examiner—Javaid Nasri

(57) **ABSTRACT**

A duplex electrical connector providing two inbound end apertures to conduct two helically wound armored or metal clad electrical cables through a single hole in an electrical junction box and secure it thereto. The duplex connector includes a housing with spring steel cable retainers at its inbound end to secure the cables and prevent their forceful withdrawal from the box. A spring steel adapter is included at the outbound end of the housing to provide easy snap-in attachment to the box. Two embodiments include an insert for attaching the cable retainers to the housing and a third embodiment includes a housing that accepts the cable retainers without the need for a separate insert.

6 Claims, 5 Drawing Sheets



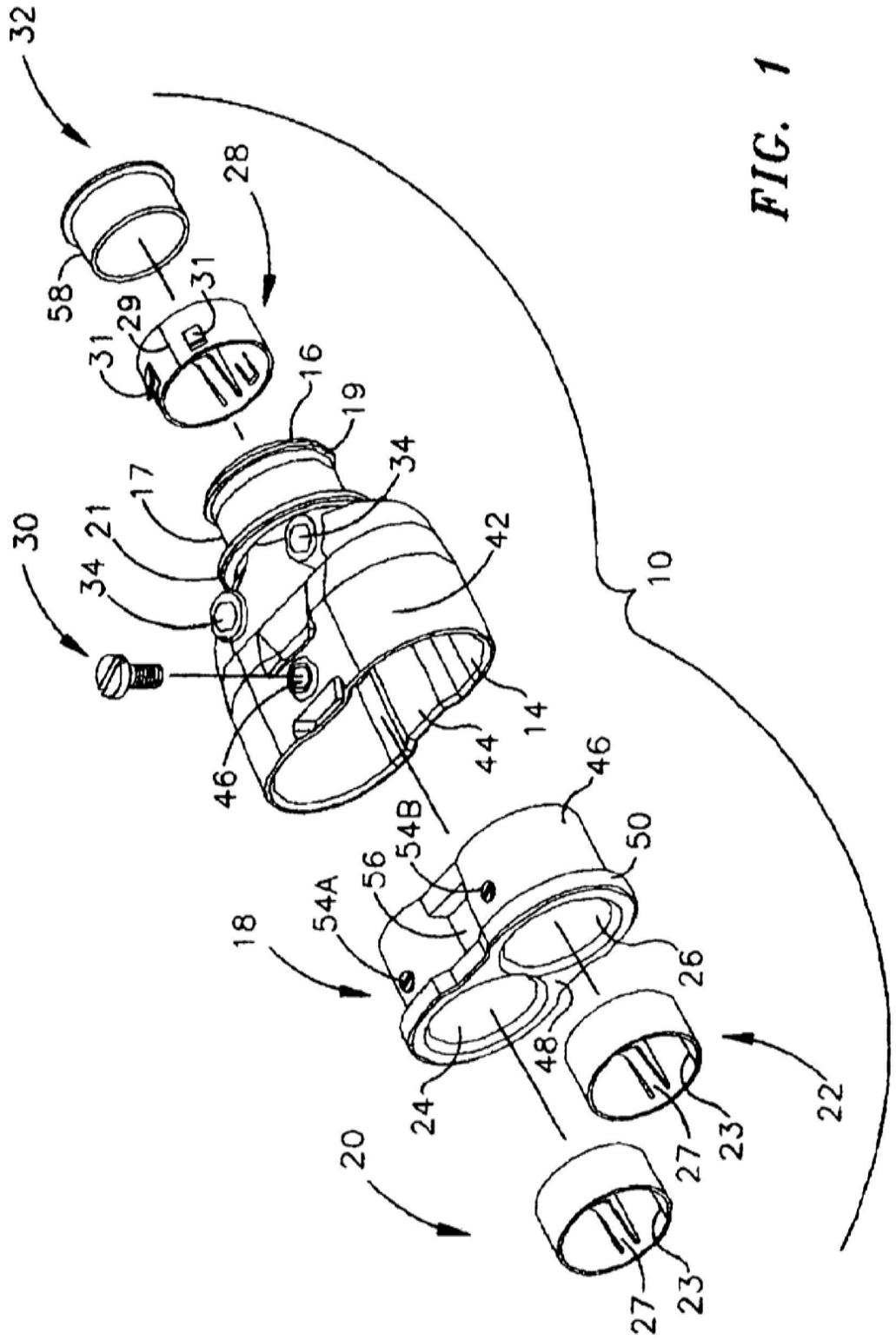

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FIG. 1

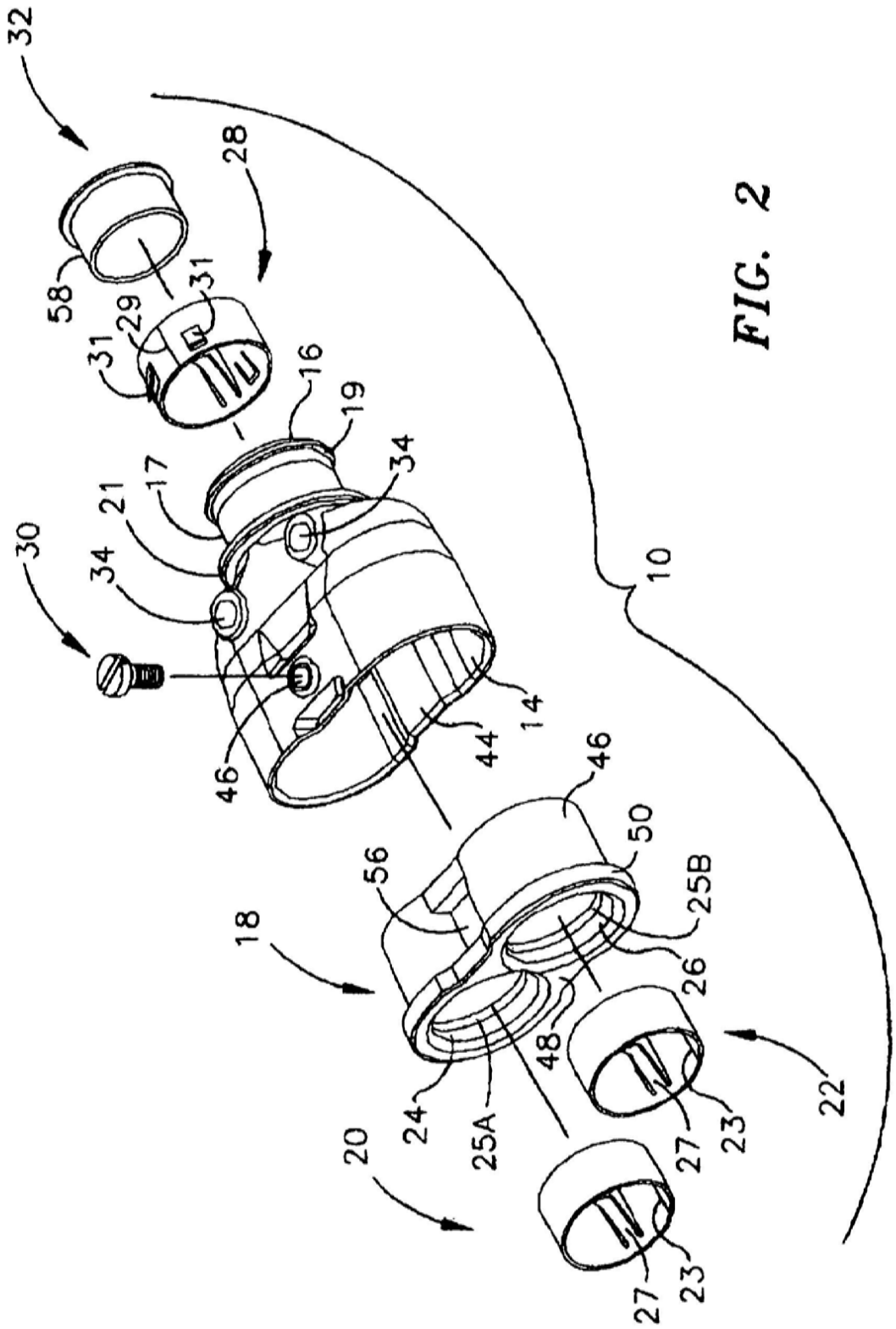
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FIG. 2

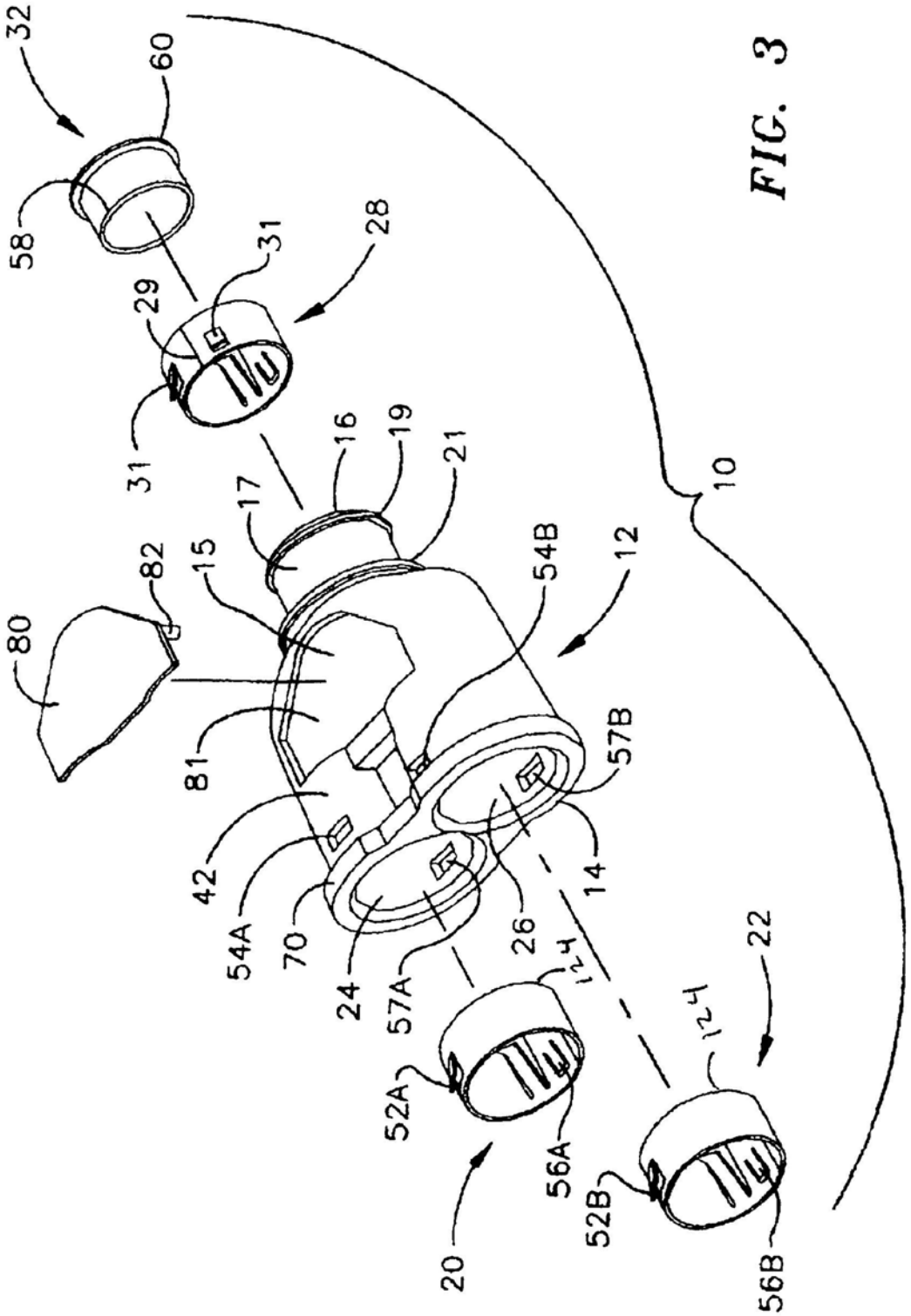
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FIG. 3

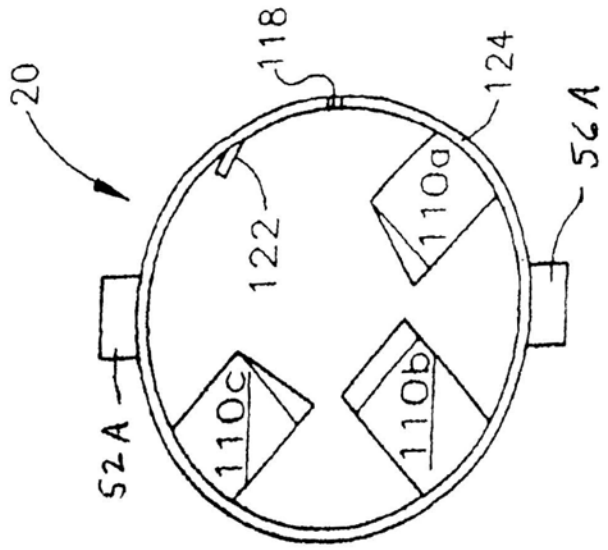
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FIG. 5

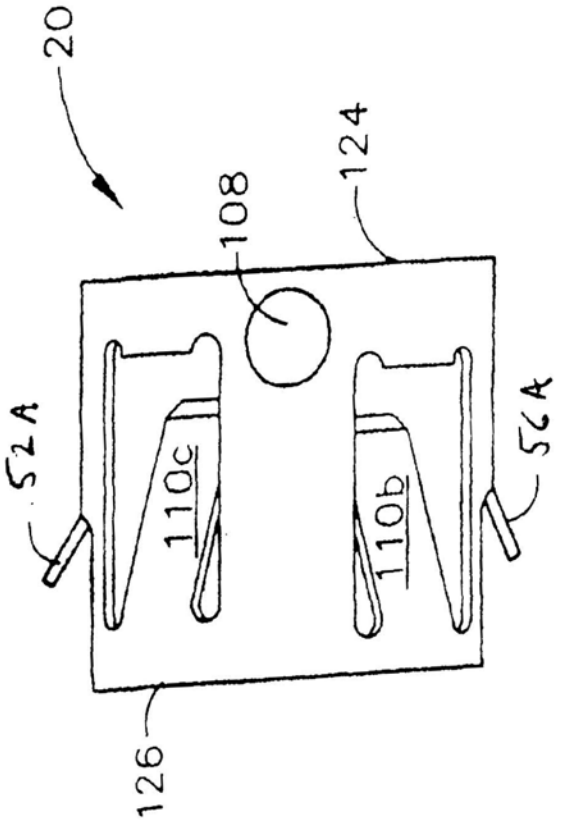
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FIG. 4

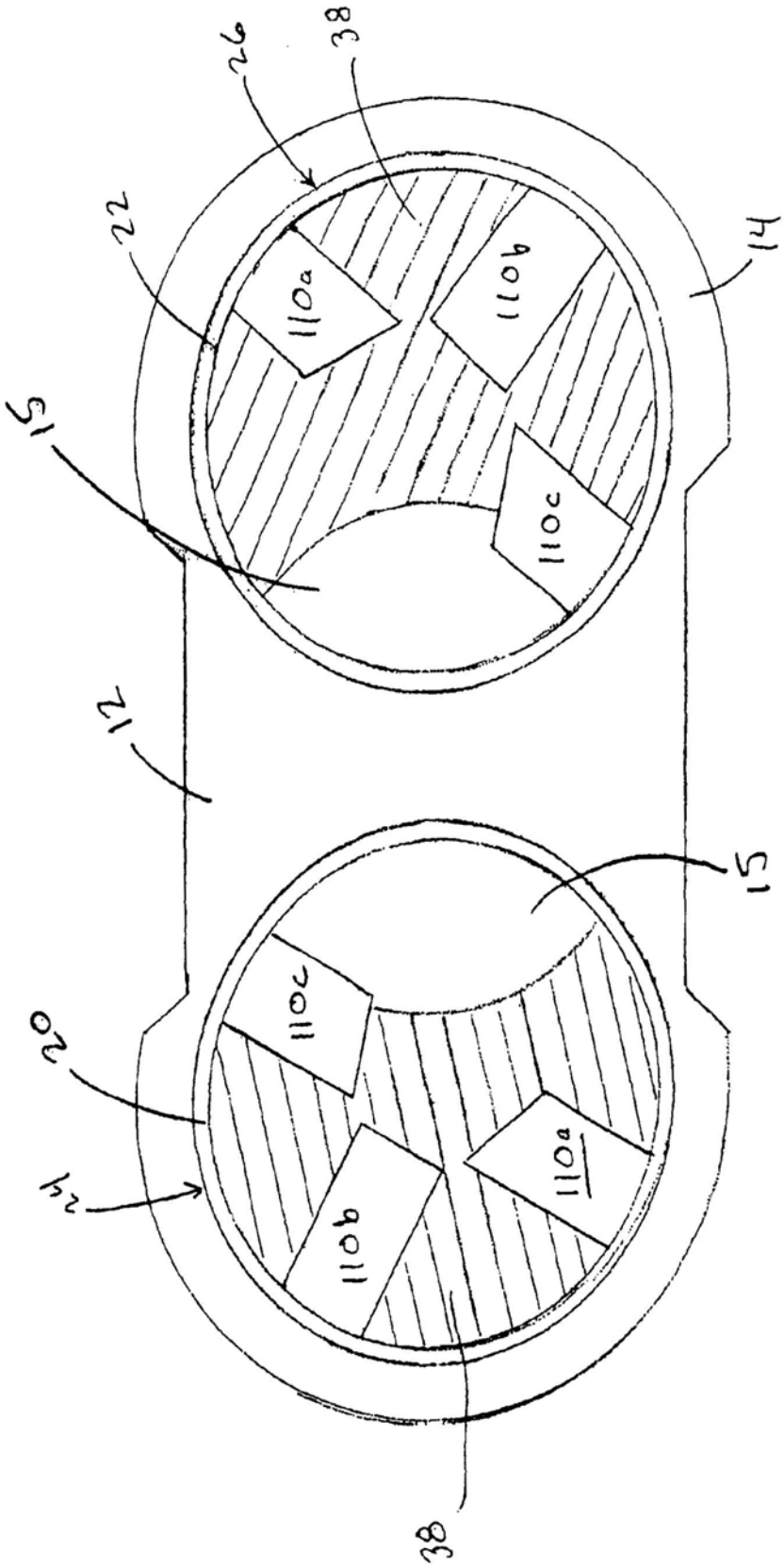

Fig. 6

DUPLEX ELECTRICAL CONNECTOR WITH SPRING STEEL CABLE RETAINER

This application is a Continuation-In-Part of U.S. Patent Application entitled "Duplex Connector" filed Feb. 23, 2001, application Ser. No. 09/792,185 now U.S. Pat No. 6,355,884 which is a Continuation-In-Part of U.S. Patent Application entitled "Duplex Connector" filed Aug. 13, 1999, application Ser. No. 09/373,427 now U.S. Pat. No. 6,194,661.

FIELD OF THE INVENTION

The present invention relates to cable terminations and more particularly to duplex or two-wire cable terminations that snap into place and include snap-on cable retainers, neither of which requires twisting for locking.

BACKGROUND OF THE INVENTION

U.S. Pat. No. 6,080,933 issued Jun. 27, 2000 in the name of Thomas J. Gretz for "Snap in Cable Connector", and herein incorporated by reference in its entirety, describes a locking cable connector composed of three mating pieces that snap together and provide a connector for connecting helically wound armored or metal clad electrical conductors to junction boxes or electrical panels. The first piece of the snap in locking cable connector is a die cast member including at its inner end a smooth outer cylindrical section having an outer diameter with flanges that accommodates a second piece comprising a spring steel adapter. The spring steel adapter is used to secure the connector to a junction box. The third piece is a spring steel locking ring provided to receive a helically wound shielded cable that is inserted into the outer end of the die cast member. The locking ring has outwardly directed tangs that snap into the die cast member and secure it thereto. The locking ring also has inwardly directed tangs to receive the armored cable through its inner bore and restrict its removal by a rearward applied force. The part named "spring steel locking ring" of U.S. Pat. No. 6,080,933 is hereinafter referred to as "spring steel cable retainer" in this disclosure.

U.S. Pat. No. 6,194,661 issued Feb. 27, 2001 in the name of Thomas J. Gretz for "Duplex Connector", and herein incorporated by reference in its entirety, discloses a duplex connector that combines the spring steel locking ring and spring steel adapter of U.S. Pat. No. 6,080,933 with a novel connector to connect two helically wound armored or metal clad electrical conductors to a junction box or an electrical panel through a single access hole or knockout. The duplex connector includes a housing having a generally oval or race track-shaped inbound end and a cylindrical outbound end. The inbound end of the housing is adapted to accept an insert containing two spring steel cable retainers that are analogous to the spring steel locking rings of U.S. Pat. No. '933 with the outbound end adapted to accept a spring steel adapter analogous to the spring steel adapter of U.S. Pat. No. '933. The insert is secured to the housing in U.S. Pat. No. '661 by a screw or similar fastening device.

Although the duplex connector of U.S. Pat. No. '661 provides an easy way to connect two conductors through a single access hole in a junction box or panel, it can be improved. A simpler design of the duplex connector of '661 could be created by removing the outward tangs on the cable retainers and replacing the apertures on the insert with a threaded hole sized to accept a set screw. Set screws could then be inserted to secure the spring steel cable retainers to the insert. Another simpler design of both the spring steel cable retainers and the insert would be achieved by forming annular ridges at the inboard end of the insert to hold the cable retainers inside the insert. In this manner the outward tangs on the cable retainers could be eliminated along with the tang apertures on the insert.

The duplex connector of the present invention could be made even simpler by modifying the inbound end of the connector housing to hold the cable retainers. Modified in this manner, the insert could be eliminated thereby reducing the number of required parts.

SUMMARY OF THE INVENTION

The present invention provides several simplified designs of the duplex connector disclosed in U.S. Pat. No. 6,194,661 issued Feb. 27, 2001 to Gretz. U.S. Pat. '661 discloses a duplex connector that combines the spring steel locking ring and spring steel adapter of U.S. Pat. 6,080,933 with a novel connector to connect two helically wound armored or metal clad electrical conductors to a junction box or an electrical panel. The duplex connector includes an insert that is fastened to its inbound end and includes spring steel cable retainers to secure two inbound cables.

A first embodiment of the present invention simplifies the design of the duplex connector of U.S. Pat. No. '661 by removing the outward tangs on the cable retainers and replacing the apertures on the insert with a threaded hole sized to accept a set screw. Set screws are then inserted to secure the spring steel cable retainers to the insert. In this manner the machining of the spring steel cable retainers are simplified by eliminating the requirement to form outwardly extending tangs. Machining of the insert is also simplified by eliminating the apertures to accept the tangs of the cable retainers.

A second embodiment of the duplex connector simplifies the connector even further by providing annular ridges at the inbound end of the insert to act as a retainer for holding the spring steel cable retainers. The cable retainers are then simply snapped into place within the inbound end of the insert thereby eliminating the need for tangs or set screws to hold them in place.

A third and preferred embodiment simplifies the duplex connector of U.S. Pat. No. '661 even further by eliminating the need for an insert. In this embodiment, the inbound end of the connector housing is modified to accept the spring steel cable retainers without the need for an insert. This greatly simplifies the construction of the duplex connector by completely eliminating the need for a separate part.

Another simpler design of both the spring steel cable retainers and the insert would be achieved by forming annular ridges at the inboard end of the insert to hold the cable retainers inside the insert. In this manner the outward tangs on the cable retainers could be eliminated along with the tang apertures on the insert.

DESCRIPTION OF THE DRAWINGS

FIG. **1** is a blown apart view of a first embodiment of the duplex connector of the present invention in which tangs and tang apertures are eliminated from the cable retainers and insert respectively.

FIG. **2** is a blown apart view of a second embodiment of the duplex connector of the present invention in which cable retainers are held in the insert by annular ridges.

FIG. **3** is a blown apart view of a third and preferred embodiment of the duplex connector of the present invention in which the insert is eliminated.

FIG. **4** is a side view of spring steel cable retainer **20** or **22** of FIG. **3**.

FIG. **5** is an end of spring steel retainer **20** or **22** as viewed from forward edge **124** of the retainer shown in FIG. **4**.

FIG. **6** is an end view of the inbound end of the housing of the preferred embodiment of FIG. **3**.

Table of Nomenclature

Part No.	Part Description
10	duplex connector
12	housing
14	inbound end (of housing 12)
15	aperture in outbound end of housing
16	outbound end (of housing 12)
17	outer diameter (of outbound end of housing)
18	inbound end insert
19	flange (of outbound end of housing)
20	spring steel cable retainer
21	flange (of inner portion of outbound end of housing)
22	spring steel cable retainer
23	slots (in cable retainers 20, 22)
24	inbound insert aperture
25a	annular ridge
25b	annular ridge
26	inbound insert aperture
27	inward cable-gripping tangs (in cable retainers)
28	spring steel adapter
29	slot (in spring steel adaptor)
30	locking screw (to secure inbound end insert)
31	tangs (on outer circumference of adapter 28)
32	bushing
34	peepholes
36	shoulder portions (of housing)
38	interior surface (of shoulder portions)
40	internal volume (of housing)
42	top wall
44	bottom wall
46	insertion end (of insert 18)
47	threaded hole (for screw 30)
48	end (of insert 18)
50	flange (of insert 18)
52A	outward projecting tang (of cable retainer)
52B	outward projecting tang (of cable retainer)
54A	tang aperture (for tang 52a)
54B	tang aperture (for tang 52b)
56A	outward projecting tang (of cable retainer)
56B	outward projecting tang (of cable retainer)
57A	tang aperture (for tang 56A)
57B	tang aperture (for tang 56B)
58	cylindrical body (of bushing)
60	flange (of bushing)
70	flange (of housing)
80	panel
81	viewing window
82	projections (from panel)
108	aperture (in cable retainer)
110a	inwardly extending tang (of cable retainer)
110b	inwardly extending tang (of cable retainer)
110c	inwardly extending tang (of cable retainer)
118	gap (of cable retainer)
124	forward edge (of cable retainer)
126	trailing edge (of cable retainer)

DETAILED DESCRIPTION OF THE INVENTION

As shown in FIG. **1** and FIG. **2**, the duplex connector **10** of the first two embodiments of the present invention comprises many of the same components as the duplex connector of U.S. Pat. No. 6,194,661 including a housing **12** having a generally oval or race track-shaped inbound end **14** and a cylindrical outbound end **16**, an inbound end insert **18**, spring steel cable retainers **20** and **22** that insert into a pair of parellel apertures or openings **24** and **26** in the inbound end, spring steel adapter **28** about the outer diameter **17** of cylindrical outbound end **16** and retained by flanges **19** and **21**, locking screw **30**, a bushing **32** inserted into the inner circumference of outbound end **16** and a pair of peepholes **34** that permit viewing of the interior of housing **12** to determine the presence and/or location of cable inserted into housing **12** through insert apertures **24** and **26**.

Housing **12**, in addition to previously described generally oval inbound end **14**, peepholes **34**, and cylindrical outbound end **16** incorporating outer diameter **17** and flanges **19** and **21** includes shoulder portions **36** whose interior surfaces **38** are smooth to guide cables inserted through inbound end **14** via insert apertures **24** and **26** toward and through internal volume **40** of cylindrical outbound end **16**. Additionally, housing **12** includes, in at least one of its relatively flat top or bottom walls **42** and **44**, a threaded hole **47** for rotational engagement of screw **30** as described hereinafter. Flange **19** has a slight inward incline to ease insertion of housing **12** into a junction box aperture and to ease the application of spring steel adapter over outer diameter **17**. Flange **21** is of a greater diameter than flange **19** to prevent over insertion of spring steel adapter **28**.

In the first two embodiments of the duplex connector shown in FIGS. **1** and **2**, insert **18** comprises a binocular shape and has outer dimensions at insertion end **46** that are matched to the inner dimensions of generally oval inbound end **14** of housing **12**. End **48** of insert **18** includes a flange **50** about both insert apertures **24** and **26** that serves as a stop to limit insertion of insert **18** into inbound end **14** of housing **12**.

Referring to FIG. **1**, the first embodiment of the duplex connector **10** of the present invention includes the spring steel cable retainers **20**, **22** aligned with the central axis of each of their respective inbound insert apertures **24**, **26**. The cable retainers **20**, **22** are each discontinuous at slots **23**. When inserted into insert **18**, the cable retainers **20**, **22** are compressed until slots **23** become essentially closed and allow them to be inserted into their respective insert aperture **24**, **26**. A plurality of inwardly directed tangs **27**, one of which is in view in FIG. **1** on each cable retainer **20**, **22**, are oriented toward the insert **18** and extend into the central core of the retainers **20**, **22**. The cable retainers **20**, **22**, after being compressed and inserted into their respective insert apertures **24**, **26**, snap outwardly and are held in the insert **18** by tightening of the respective set screws **55**A, **55**B. The first embodiment of the present invention thereby reduces the amount of machining required by eliminating the need to form outward tangs in the cable retainers **20**, **22** and tang accepting apertures in the insert **18**.

As shown in FIG. **1**, a bushing **32** comprising a cylindrical body **58** having a flange **60** is inserted at the outbound end **16** of the housing **12** to prevent accidental damage to inserted cable (not shown in FIG. **1**). Bushing **32** is designed to frictionally engage the interior of cylindrical outbound end **16** of housing **12** and is preferably made of a polymeric material that serves to cushion cable inserted into housing **12** and exiting through cylindrical outbound end **16**.

As shown in FIG. **1**, spring steel adapter **28** includes a slot **29** to permit expansion prior to being fitted over diameter **17**, and includes a plurality of tangs **31** to prevent removal of adapter **28** from the aperture of a junction box (not shown) after installation into such an aperture. A more detailed description of adapter **28** and its operation can be found in U.S. Pat. No. 6,080,933 entitled "Snap In Cable Connector", assigned to the same assignee as the present invention and incorporated herein by reference.

Referring to FIG. **2**, the second embodiment of the duplex connector **10** is a simplified design that eliminates the need for tangs or set screws to secure the spring steel cable retainers **20**, **22** to the insert **18**. In this embodiment, the cable retainers **20**, **22** are held in place by annular ridges **25**A, **25**B in each respective inbound insert aperture **24**, **26**. To insert the cable retainers **20**, **22** in the insert apertures **24**, **26**, the discontinuous cable retainers **20**, **22** are each compressed until each slot **23** is minimized. The compressed cable retainers **20**, **22** are then slipped past the annular ridges **25**A, **25**B into the insert apertures **24**, **26** and then allowed to relax to their unbiased shape. The cable retainers **20**, **22** therefore snap outwardly to their larger unbiased diameters and are held in the insert **18** by their respective annular ridges **25**A, **25**B. Peepholes **34** are provided in the top wall **42** of the insert **18** to assist in viewing the wiring after it is installed inside the connector **10**. The second embodiment of the present invention thereby reduces the amount of machining required by eliminating the need to form outward tangs, tang accepting apertures, or set screws to hold the cable retainers **20**, **22** in place.

A blown apart view of the third and preferred embodiment of the duplex connector **10** is depicted in FIG. **3**. The insert, as shown in FIG. **3**, has been eliminated and its functionality has been built into the housing **12**. In the duplex connector of U.S. Pat. No. 6,194,661, tang accepting apertures were formed in the insert. In the present embodiment of the duplex connector **10**, the tang accepting apertures **54**A, **54**B, **57**A, **57**B are formed in the inbound end **14** of the housing **12**. As cable retainer **20** is compressed, inserted into inbound insert aperture **24** and then released, outward extending tang **52**A snaps into tang aperture **54**A and outward extending tang **56**A snaps into tang aperture **57**A. Cable retainer **22** is held in a similar manner by tangs **52**B and **56**B and tang apertures **54**B and **57**B. This preferred embodiment of the duplex connector **10** thereby simplifies the design of the connector even further by eliminating the need for a separate insert and housing and including the functionality of the insert in the housing. The inbound end **14** of the housing includes a flange **70** that adds structural rigidity to the housing.

The preferred embodiment of the duplex connector shown in FIG. **3** also has an advantage of a larger viewing area for internal connections. A viewing window **81** is provided in the top wall **42** of the housing **12**. A snap-fit panel **80** is provided with the duplex connector **10** and snapped into place in the viewing window **81**. Projections **82** on the panel provide a means for panel **80** to snap fit into the viewing window **81**. The panel **80** may later be removed if desired for later viewing the cables within the connector **10**.

FIG. **4** is a side view of the spring steel cable retainer **20** or **22** of FIG. **3**. The cable retainer **20** is depicted with a forward edge **124** and a trailing edge **126**. When inserted into the housing, as shown in FIG. **3**, forward edge **124** will slide into inbound insert aperture **24**. Referring again to FIG. **4**, cable retainer **20** includes outward projecting tangs **52**A and **56**A and two of the inward projecting cable tangs **110***a* and **110***c* at staggered distances from forward edge **124**. Although aperture **108** is depicted, it is not functional in the present invention but is used to hold the blank during the manufacturing process when the spring steel blank (not shown in FIG. **4**) is formed into the tubular spring steel **20** cable retainers **20** and **22**.

FIG. **5** is an end view of spring steel retainer **20** or **24** as viewed from forward edge **124** showing staggered cable tangs **110**A, **110**B and **110**C oriented toward forward edge **124**. Outward projecting tangs **52**A, **56**A are oriented toward the trailing edge (not shown in FIG. **5**). The purpose of triangle-shaped gripper **122** is to secure the cable retainer during the manufacturing process and is not functional to the operation of the retainer in the present invention. During its manufacture, cable retainer **20** is formed from a flat blank and is therefore not continuous, as shown in FIG. **5**, with a gap **118** existing between the two ends of the blank that has been formed into a circular shape.

Referring to FIGS. **4** and **5**, the spring steel cable retainer **20** is adapted to receive a helically wound shielded cable (not shown in FIGS. **4** and **5**) when inserted from trailing edge **126** toward forward edge **124**. The inwardly extending tangs **110***a*, **110***b*, **110***c* are staggered at distances from trailing edge **126** that permit them to find and seat in the existing grooves in the helically wound shielded cable. Once the cable is inserted fully in the cable retainer **20**, past all the inwardly extending tangs **110***a*, **110***b*, **110***c*, the cable retainer **20** will resist removal of the cable by any rearward force applied to it. The cable retainer **20** is shown in FIGS. **4** and **5** prior to its insertion in the inbound insert aperture **24** of the present invention to aid in describing its function in the present invention. The reader should realize that the cable retainer **20** will function best to grip the cable when secured in the inbound insert aperture of the housing or insert described previously. When later secured in the inbound insert aperture, the gap **118** shown in FIG. **5** will be minimal and the outward expansion of the cable retainer **20** will be constrained by the cylindrical walls of the inbound insert aperture.

As shown in FIG. **5**, the inwardly extending cable tangs **110***a*, **110***b*, **110***c* are oriented as shown, about 90° apart. The orientation of tangs **110***a*, **110***b*, and **110***c* serve to receive and engage an armored cable inserted from the inbound end of the housing (not shown in FIG. **5**) and guide the cable toward the cylindrical outbound end of the housing in a manner that separate cables are advanced to the outbound end without mutual interference.

Referring to FIG. **6**, an end view of the inbound end **14** of the housing **12** of the preferred embodiment of FIG. **3**, the spring steel cable retainers **20**, **22** are shown locked into their respective inbound insert apertures **24**, **26**. As shown in FIG. **6**, tangs **110***a*, **110***b*, and **110***c* are oriented to receive and engage an armored cable (not shown in FIG. **6**) inserted from the inbound end **14** of the housing **12** and guide the cable toward the aperture **15** in the outbound end of the housing **12** in a manner that separate cables are advanced to the outbound end without mutual interference. The smooth interior surface **38** of the shoulder portions of the housing **12** also serve to guide the cables to the outbound end aperture **15**. The orientation of the inwardly extending tangs **110***a*, **110***b*, **110***c* of the cable retainers **20**, **22** are critical as cable retainer **22** on the right side of FIG. **6** guides its cable upward in the housing **12** and toward the outbound end aperture **15** while cable retainer **24** on the left side of FIG. **6** guides its cable downward in the housing **12** and toward the outbound end aperture **15**. The net result is that separation is maintained between the cables allowing them to slip by one another and through the housing **12** to the outbound end aperture **15**.

As the invention has been described, it will be apparent to those skilled in the art that the same may be varied in many ways without departing from the spirit and scope of the invention. Any and all such modifications are intended to be included within the scope of the appended claims.

What is claimed is:

1. A duplex electrical connector comprising:

a) a housing having a cylindrical outbound end, a generally oval inbound end, and an interior channel linking said inbound and said outbound end;

b) a pair of parallel openings in said inbound end;

c) a tubular spring steel cable retainer secured in each of said openings in said inbound end for accepting separate cables, said retainers including a set of inwardly extending tangs to receive and engage said separate cables inserted from said inbound end and guide said separate cables toward said cylindrical outbound end in a manner that said separate cables are advanced to said outbound end, said inwardly extending tangs restricting removal of said separate cables by force applied on said separate cables from said inbound end; and

d) a tubular spring steel adapter secured to said cylindrical outbound end of said housing, said adapter having outwardly extending tangs.

2. The duplex electrical connector of claim **1** including an insert secured within said inbound end, said insert is generally oval in shape and includes said pair of parallel openings, said openings having an insertion end, a rearward end, and interior walls with said retainers disposed in said openings, said walls each including a threaded hole and a screw disposed laterally therein so that tightening of said screws will secure said retainers in said openings.

3. The duplex electrical connector of claim **1** including an insert secured within said inbound end, said insert is generally oval in shape and includes said pair of parallel openings having an insertion end, a rearward end, and interior walls with said retainers disposed in said openings, said walls each including an annular ridge near said rearward end for securing said retainers in said openings.

4. The duplex electrical connector of claim **1** wherein said pair of parallel openings include interior walls, said walls including a plurality of tang accepting apertures, said retainers including a plurality of outward extending tangs that permit insertion of said retainers in a compressed state into said openings such that said tangs snap into said tang accepting apertures upon full insertion.

5. The duplex electrical connector of claim **1** wherein said inwardly extending tangs in each of said cable retainers consist of three tangs spaced approximately 90° apart such that said tangs cover approximately 180° of the opening through each of said retainers and the remaining 180° is essentially open and defines a cable passageway.

6. The duplex electrical connector of claim **5** wherein said generally oval inbound end contains two cable retainers centered along a central axis dissecting the oval lengthwise with the first of said retainers having said cable passageway oriented approximately 45° away from the center of said inbound end and the second of said retainers having said cable passageway oriented approximately 45° away from the center in the opposite direction of said first retainer.

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